

*Middleby West App*

**AMERICAN**

**RAILROAD JOURNAL.**

**STEAM NAVIGATION, COMMERCE, MINING, MANUFACTURES.**

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**HENRY V. POOR, *Editor.***

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**SATURDAY, JUNE 8, 1850.**

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**ESTABLISHED IN 1831.**

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**NEW-YORK:**

**PUBLISHED WEEKLY, BY**

**JOHN H. SCHULTZ & CO.**

**Room 12, Third Floor,**

**No. 136 Nassau Street.**

**FARMERS! ATTENTION!!**

**John Mayher & Co's**  
NEW AGRICULTURAL WAREHOUSE  
AND SEED STORE,

197 WATER STREET, NEW YORK.

Where they have for Sale, the largest and most complete assortment of Farming Implements, ever offered for sale in this city—all of which they will sell 10 per cent. Cheaper than the same kind of Goods can be bought at any other house in the city. Our Goods are all Warranted to give satisfaction.

FARMERS wanting to purchase, will please call and examine our Stock before buying elsewhere.

Among our assortment may be found the Celebrated Highest Premium Eagle Ploughs! together with all the most approved Ploughs now in use.

Also,—Horse Powers, Threshing Machines, Fan Mills, Corn Shellers, Straw Cutters, Corn Mills, Seed Sowers, Churns, Ox Yokes, Ox Scrapers, Hay Rakes, Horse Rakes, Patent Chain Pump (that never freezes nor rusts), and other Pumps; in fact we have everything for Farming Purposes—together with Guano, Bone Dust and other Fertilizers.

JOHN MAYHER & CO.,  
197 Water st., N. Y.

February 9, 1850.

N.B.—J. M. & Co. also continue their Old Stand, at 195 Front street, near Fulton Market.

**STABILITY—SECURITY—PERPETUITY.**  
**Mutual Life Insurance Co. of**  
**New York.**

No. 35 WALL STREET.

**A MILLION OF DOLLARS**

Securely invested in Bonds and Mortgages on real estate in this city and Brooklyn, and stocks of the State and City of New York and United States Government.

The company declared a dividend of profits of fifty-two per cent. on all existing policies on the 31st of January, 1848.

*All the Profits are Divided Among the Insured.*

Persons may effect insurance on their own lives and the lives of others.

A married woman can insure the life of her husband, the benefits of which are secured by law for the exclusive use of herself or children.

Clergymen and all others dependent upon salaries or their daily earnings are specially invited to avail themselves of a resource whereby their surviving families may be secured from the evils of penury.

Pamphlets explanatory of the principles of Mutual Life Insurance, and illustrating its advantages, with forms of application, may be obtained at the office of the company, 35 Wall street, or of any of its agents.

**TRUSTEES.**

Jos. B. Collins,	David C. Colden,
Wm. J. Hyslop,	Alfred Edwards,
R. H. McCurdy,	Wm. Betts,
Fred. S. Winston,	Joseph Blunt,
C. W. Faber,	Isaac G. Pearson,
John P. Yelverton,	Henry Wells,
Theo. Sedgwick,	Wm. Moore,
Stacy B. Collins,	Zebedee Cook,
John H. Swift,	Jona. Miller,
John Wadsworth,	David A. Comstock,
S. M. Cornell,	Robert Schuyler,
Gouv. M. Wilkins,	James Chambers,
John V. L. Pruyn,	Joseph Tuckerman,
Fred. Whitteley,	Moses H. Grinnell,
Charles Ely,	Wm. J. Banker,
John C. Cruger,	Eugene Duilh,
Walter Joy,	Francis S. Lathrop,
Alfred Pell,	John C. Thatcher.

JOSEPH B. COLLINS, President.  
ISAAC ABBATT, Secretary. 3m9

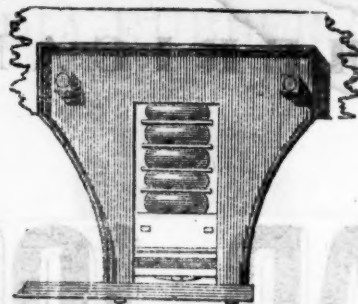
**To the Proprietors of Rolling Mills and Iron Works.**

THE Undersigned—Proprietors of Townsend's Furnace and Machine Shop, Albany—are extensively engaged in the manufacture of Machinery and fixtures for Iron, and Copper Rolling Mills, and Iron Works. Having paid particular attention to the manufacture of *Rolls* (Rollers), both *chilled and dry-sand*, they feel confident that they can execute orders for such castings in a satisfactory manner. And to give assurance of this, they beg leave to refer to the following named persons, proprietors and managers of some of the most extensive rolling mills in the country, viz: Jno. F. Winslow, J. Tuckerman, H. Burden, W. Burt, J. & J. Rogers, Saltus & Co., J. B. Bailey, L. G. B. Cannon, Hawkins & Atwater, etc., etc.

F. & T. TOWNSEND.

Albany, August 18, 1849.

**FULLER'S PATENT INDIA RUBBER SPRING.**



THESE SPRINGS ARE THE CHEAPEST, the lightest and most durable of any yet known. They are easily applied to new or old cars, and there is small possibility of any accident occurring to them. Other parties through Mr. Ray set up claims to an India Rubber Spring which, though the same in principle, is very inferior in its working and durability. Actions are in progress for an Infringement on Fuller's Patent against parties using that Spring.

The superiority of Fuller's Spring over that claimed by Mr. Ray is fully established and has frequently been testified to. The following are from gentlemen who have had much experience with both Springs.

"It will afford me pleasure to recommend your springs to the companies in this region, in preference to Ray's which I am confident are inferior in mechanical arrangement to yours." JOHN M'RAE, Engineer S. Carolina R. R., Charleston.

"I do not hesitate to allow you to say that I concur in Mr. M' Rae's opinion that Ray's springs are inferior in mechanical arrangement to Fuller's. I repeatedly expressed that opinion long before Mr. M' Rae had seen your springs (as I believe) and entertain it still." WM. PARKER, Gen'l Supt. of Baltimore and Ohio R. R.

Office of Sup't Norwich & Worcester R.R. Co. }  
December 26, 1849. }

"I most fully concur in the opinion of Jno. M' Rae, Engineer of S. Carolina Railroad, that 'Rays Springs are inferior to Fuller's Springs;' and shall with pleasure recommend them to all Railroad Companies for adoption. I have used both springs on this road and have no hesitation in saying that I should in all cases prefer Fuller's Spring."

SAM'L H. P. LEE, JR.,  
Supt. and Engineer.

Office B. & P. R. R. Co. }  
Boston, 20th December, 1849. }

"This company have cars fitted up with both Ray's and Fuller's 'Metallic India Rubber Springs,' and I do not hesitate to say that Fuller's arrangement is very much superior to Ray's."

W. RAYMOND LEE, Supt.

The following result has been obtained by experiment upon one railroad.

A set of Trucks fitted with Steel Springs cost \$190.77 and weigh 2355 lbs.	
The same with Fuller's Springs,	131.71 " 1911 lbs.

Difference,	\$59.06	"	444 lbs.
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Not only is there an advantage in the cost, but owing to the great reduction in weight, the car can be made lighter throughout, and so an enormous saving in weight may be effected in a Train.

**AGENTS.**

G. M. KNEVITT, 38 Broadway, N. Y.,  
JOHN THORNLEY, 110 Chestnut St., Philad.  
THE BOSTON BELTING CO., Milk st., Boston.  
January 2, 1850.

**American Cast Steel.**

THE ADIRONDAC STEEL MANUFACTURING CO. is now producing, from American iron, at their works at Jersey City, N.J., Cast Steel of extraordinary quality, and is prepared to supply orders for the same at prices below that of the imported article of like quality. Consumers will find it to their interest to give this a trial. Orders for all sizes of hammered cast steel, directed as above, will meet with prompt attention.

May 28, 1849.

**NOTICE TO**

**Superintendents of Railroads.**

TYLER'S PATENT SAFETY SWITCH.—The undersigned would respectfully call their attention to his Patent Safety Switch, which from long trial and late severe tests has proved itself perfectly reliable for the purpose for which it was intended. It is designed to prevent the train from running off when the switch is set to the wrong track by design or accident. The single rail or gate switch is established as the best and safest switch for the ordinary purpose of shifting cars from one track to another, but it is liable to the serious evil of having one track open or broken when connected with the other. My improvement entirely removes this evil, and while it accomplishes this important office, leaves the switch in its original simplicity and perfection of a plain unbroken rail, connecting one track with the other ready for use.

The following decision of the Commissioner of Patents is respectfully submitted to Railroad Engineers, Superintendents, and all others interested in the subject.

(COPY.)

UNITED STATES PATENT OFFICE,  
Washington City, D.C., April 28th, 1846.

SIR: You are hereby informed that in the case of the interference between your claims and those of Gustavus A. Nicolls, for improvements in safety switches—upon which a hearing was appointed to take place on the 3d Monday in March, 1846, the question of priority of invention has been decided in your favor. Inclosed is a copy of the decision. The testimony in the case is now open to the inspection of those concerned.

Yours respectfully, EDMUND BURKE,  
Commissioner of Patents.

To Philo B. Tyler.

Any further information may be obtained by addressing P. B. TYLER, Springfield, Mass., or JOHN PENOLETON, Agent, 149 Hudson St., New York.

**PHILADELPHIA CAR MANUFACTORY,**

CORNER SCHUYLKILL 2D AND HAMILTON STS.,  
SPRING GARDEN, PHILADELPHIA CO., PA.

**Kimball & Gorton,**

Having recently constructed the above works, are prepared to construct at short notice all kinds of

**RAILROAD CARS, Viz:**

Passenger Cars of all classes—Open and Covered Freight and Express Cars—Coal Cars—Hand Cars & Trucks of all descriptions.

They are also prepared to furnish Chilled Wheels of any pattern. Car Wheels & Axles fitted and furnished. Snow Ploughs and Tenders made to order. Steel and other Springs always on hand.

All orders will be filled at short notice, and upon as good terms as at any other establishment in the country. Omnibuses from the Exchange run within one square of the manufactory every 10 minutes during the day. Philadelphia, June 16, 1849. ly25

**C. W. Bentley & Co,**

IRON Founders, Portable Steam Engine Builders and Boiler Makers, Corner Front and Plowman Sts., near Baltimore St. Bridge,

**BALTIMORE, MARYLAND.**

Their Engines are simple in their construction, compact and durable; they require no brick work in setting them, and occupy but a small space (a six horse power engine and boiler, standing on a cast iron plate of three by six feet.)

They also manufacture Major W. P. Williamson's new oscillating Engine; a superior article, combining cheapness and simplicity (one of which may be seen in operation at their shop.) Both of these engines are adapted to any purpose where power is required, and may be made of any capacity; and for economy in use of fuel are unsurpassed.

All kinds of machinery made to order. Steam Generators, Force Pumps, Wrought Iron Pipes and Fittings for Steam, Water, Gas, etc., constantly on hand, Baltimore, June 6, 1849.

**CORROSIVE SUBLIMATE.**

THIS article now extensively used for the preservation of timber, is manufactured and for sale by POWERS & WEIGHTMAN, manufacturing Chemists, Philadelphia.  
Jan. 20, 1849.

**Coal.**

CUMBERLAND SEMI-BITUMINOUS COAL superior quality for Locomotives, for sale by

H. B. TEBBETTS,  
No. 40 Wall St., New York.

May 12, 1849.



**IRON BRIDGES, BRIDGE & ROOF BOLTS,**  
etc. STARKS & PRUYN, of Albany, New York,  
having at great expense established a manufactory with  
every facility of Machinery for Manufacturing Iron  
Bridges, Bridge and Roof Bolts, together with all kinds  
of the larger sizes of Screw Bolts, Iron Railings, Steam  
Boilers, and every description of Wrought Iron Work,  
are prepared to furnish to order, on the shortest notice,  
any of the above branches, of the very best of Amer-  
ican Refined Iron, and at the lowest rates.

During the past year, S. & P. have furnished several  
Iron Bridges for the Erie Canal, Albany Basin, etc.,  
—and a large amount of Railroad Bridge Bolts, all of  
which have given the most perfect satisfaction.

They are permitted to refer to the following gentle-  
men:

Charles Cook,	Canal Commissioners
Nelson J. Beach,	of the
Jacob Hinds,	State of New York.
Willard Smith, Esq.,	Engineer of the Bridges for
Messrs. Stone & Harris,	the Albany Basin.
Mr. Wm. Howe,	Railroad Bridge Builders,
Mr. S. Whipple,	Springfield, Mass.
	Engineer & Bridge Builder,
	Utica, N. Y.

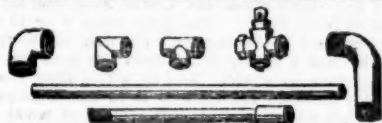
January 1, 1849.

**TO RAILROAD COMPANIES AND BUILD-  
ERS OF MARINE AND LOCOMOTIVE  
ENGINES AND BOILERS.**

**PASCAL IRON WORKS.**

**WELDED WROUGHT IRON TUBES**

From 4 inches to 1 in calibre and 2 to 12 feet long,  
capable of sustaining pressure from 400 to 2500 lbs.  
per square inch, with Stop Cocks, T, L, and  
other fixtures to suit, fitting together, with screw  
joints, suitable for STEAM, WATER, GAS, and for  
LOCOMOTIVE and other STEAM BOILER FLOWS.



Manufactured and for sale by  
**MORRIS, TASKER & MORRIS.**  
Warehouse S. E. Corner of Third & Walnut Streets,  
**PHILADELPHIA.**

**To Railroad Companies, etc.**



The undersigned has at last suc-  
ceeded in constructing and securing  
by letters patent, a Spring Pad-lock  
which is secure, and cannot be  
knocked open with a stick, like oth-  
er spring locks, and therefore particu-  
larly useful for locking Cars, and  
Switches, etc.

Companies that are in want of a  
good Pad-lock, can have open samples sent them that  
they may examine and judge for themselves, by send-  
ing their address to

C. LIEBRICH,

46 South 8th St., Philadelphia.

November 3, 1849.

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**Mattewan Machine Works.**

THE Mattewan Company have added to their Ma-  
chine Works an extensive LOCOMOTIVE ENGINE  
department, and are prepared to execute orders for Lo-  
comotive Engines of every size and pattern—also Tenders,  
Wheels, Axles, and other railroad machinery, to  
which they ask the attention of those who wish such  
articles, before they purchase elsewhere.

**STATIONARY ENGINES, BOILERS, ETC.,**  
Of any required size or pattern, arranged for driving  
Cotton, Woollen, or other Mills, can be had on favora-  
ble terms, and at short notice.

**COTTON AND WOOLLEN MACHINERY,**  
Of every description, embodying all the modern im-  
provements, second in quality to none in this or any  
other country, made to order.

**MILL GEARING,**

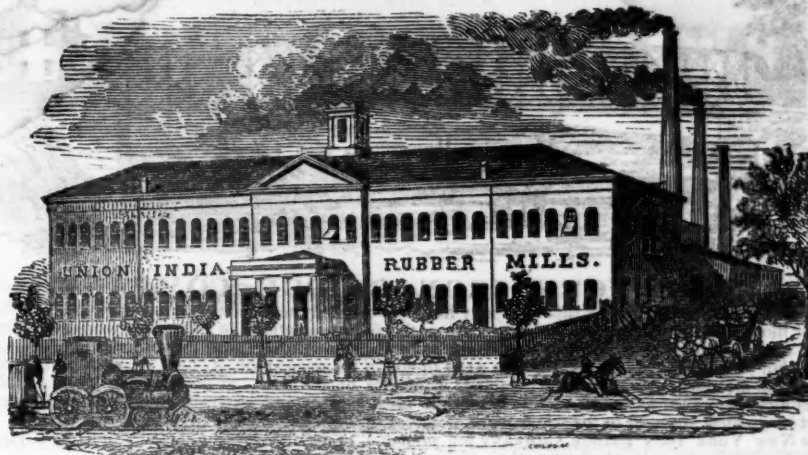
Of every description, may be had at short notice, as  
this company has probably the most extensive assort-  
ment of patterns in this line, in any section of the  
country, and are constantly adding to them.

**TOOLS.**

Turning Lathes, Slabbing, Planing, Cutting and  
Drilling Machines, of the most approved patterns, to-  
gether with all other tools required in machine shops,  
may be had at the Mattewan Company's Shops, Fish-  
kill Landing, or at 66 Beaver street, New York.

WM. B. LEONARD, Agent.

**HEAD QUARTERS FOR RUBBER GOODS.**



**The Union India Rubber Company,**

MANUFACTURERS AND DEALERS IN EVERY VARIETY OF

**GOODYEAR'S PATENT METALLIC RUBBER FABRICS,**

Which they offer on the most liberal terms at their Warehouse,

**NO. 19 NASSAU STREET, NEW YORK.**

Articles which this Company has the exclusive right to make comprise in part

Beds,	Overcoats,	Life Preservers,	Mail Bags,	Camp Blankets,
Pillows,	Leggings,	Boat Floats,	Breast Pumps,	Travelling Bags,
Cushions,	Syringes,	Souwesters,	Saddle Bags,	Wading Boots,
Caps,	Canteens,	Gun Cases,	Clothing of all kinds,	Horse Covers,
Tents,	Buoys,	Portable Boats,	Carriage Cloth, assor.	Piano Forte Covers,
Bottles,	Maps,	Horse Fenders,	Hospital Sheetting,	Railroad Gum,
Tubs,	Sheet Gum,	Water Tanks,	Mattress Covers,	Hose, all kinds,
Caps,	Tarpaulins,	Army Goods,	Bathing Caps,	Shower Baths,
Pants,	Life Jackets,	Navy Goods,	Baptismal Pants,	Chest Expanders.

Together with all new applications of the Patent Rubber, which with Boots and Shoes, Packing, Machine  
Belting, Suspenders, Gloves and Mittens, Tobacco Wallets, Balls, Baby Jumpers, Elastic Bands, etc., etc.,  
will be sold to the Trade at Factory prices.

\*\* All orders for special articles to be manufactured, should be accompanied with full descriptions and draw-  
ings.

October 20, 1849.

**RAILROAD**

**India-rubber Springs.**

If any Railroad Company or other party desires it,  
the NEW ENGLAND CAR COMPANY will furnish  
India-rubber Car Springs made in the form of washers,  
with metallic plates interposed between the layers, or  
in any other form in which they can be made; in all  
cases guaranteeing the right to use the same against  
any and all other pretended rights or claims whatsoever.

F. M. Ray, 98 Broadway, New York.

E. CRANE, 99 State Street, Boston.

1849.

**Brown's Old Established  
SCALE WARE HOUSE,**

NO. 234 WATER ST., NEW YORK.

THE Subscriber, Practical Manufacturer of Scales  
of every description, respectfully asks the atten-  
tion of Railroad Companies to his Improved Wrought  
Iron Railroad Track and Depot Scales which for  
strength, durability, accuracy, convenience in weigh-  
ing, and beauty of workmanship, are not surpassed by  
any others in this country.

He is aware that this is rather a bold assertion for  
him to make, yet he can say with confidence that they  
have but to be tried to give them precedence over all  
others.

J. L. BROWN.

Bank Scales made to order, and all Scales of  
his make Warranted in every particular.

References given if required.

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THE NEWCASTLE MANUFACTURING Co.  
continue to furnish at the Works, situated in the  
town of Newcastle, Del., Locomotive and other steam  
engines, Jack Screws, Wrought Iron Work and Brass  
and Iron Castings, of all kinds connected with Steam-  
boats, Railroads, etc.; Mill Gearing of every descrip-  
tion; Cast Wheels (chilled) of any pattern and size,  
with Axles fitted, also with wrought tires, Springs,  
Boxes and bolts for Cars; Driving and other wheels  
for Locomotives.

The works being on an extensive scale, all orders  
will be executed with promptness and despatch. Com-  
munications addressed to Mr. William H. Dobbs, Su-  
perintendent, will meet with immediate attention.

ANDREW C. GRAY,

President of the Newcastle Manuf. Co.

**DEAN, PACKARD & MILLS,**

MANUFACTURERS OF ALL KINDS OF

**RAILROAD CARS,**

SUCH AS

PASSENGER, FREIGHT AND CRANK CARS,

— ALSO —

SNOW PLOUGHS AND ENGINE TENDERS

OF VARIOUS KINDS.

CAR WHEELS and AXLES fitted and furnished

at short notice; also, STEEL SPRINGS

of various kinds; and

**SHAFTING FOR FACTORIES.**

The above may be had at order at our Car Factory,

REUEL DEAN,

ELIJAH PACKARD,

ISAAC MILLS,

SPRINGFIELD, MASS.

1y48

**Iron Safes.**

FIRE and Thief-proof Iron Safes, for Merchants,  
Banks and Jewelers use. The subscriber manu-  
factures and has constantly on



hand, a large assortment of Iron  
Safes, of the most approved con-  
struction, which he offers at much  
lower rates than any other manu-  
facturer. These Safes are made  
of the strongest materials, in the  
best manner, and warranted en-  
tirely fire proof and free from dampness. Western

merchants and the public generally are invited to call  
and examine them at the store of E. Corning & Co.,  
sole agents, John Townsend, Esq., or at the manufac-  
tory.

Each safe furnished with a thief-detector lock, of the  
best construction.

Other makers' Safes repaired, and new Keys and  
Locks furnished at the shortest notice.

H. W. COVERT

cor. Steuben and Water sts. Albany

August 24, 1848.



### NEW YORK IRON BRIDGE COMPANY.

The Bridges manufactured by this Company having been fully tested on different Railroads, by constant use for more than two years, and found to answer the full expectations of their most sanguine friends, are offered to the public with the utmost confidence as to their great utility over any other Bridge now known. The plan of this Bridge is to use the iron so as to obtain its greatest longitudinal strength, and at the same time it is so arranged as to secure the combined principles of the Arch, Suspension and Triangle, all under such controlling power as causes each to act in the most perfect and secure manner, and at the same time impart its greatest strength to the whole work.

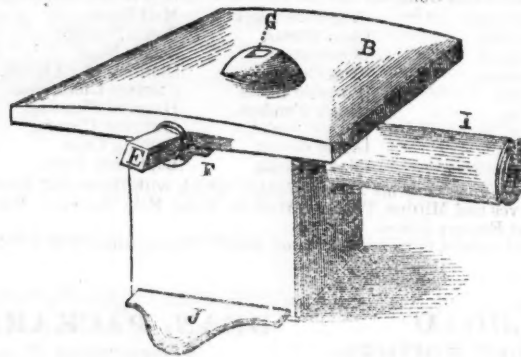
THE NEW YORK IRON BRIDGE COMPANY are prepared to furnish large quantities of Iron Bridging for Railroad or other purposes, at short notice, and at moderate prices.

Models, and pamphlets giving full descriptions of the above BRIDGE, with certificates based on actual trial from undoubted sources, will be found at the office of the Company, 39 Jauncey Court, Wall st., or of W. RIDER & BROTHERS, 19 Nassau Street, where terms of contract will be made known, and where orders are solicited.

August 29, 1849.

M. M. WHITE,  
Agent for the Company.

### E. Harris' Patent Rotary Blacksmith Tuyere.



LETTERS Patent were issued January 9, 1849, to E. HARRIS, of Springfield, for an Improved Rotary Blacksmith Tuyere. Since that time there have been some hundreds put in operation, giving satisfaction and full proof of superiority over all others.

This Tuyere is so arranged that by one movement it can be changed from the largest work to the smallest; at the same time the fire is changed in proportion, thereby making a great saving in coal. Words cannot convey the full merits of this Tuyere; nor is it deemed necessary to speak in disparagement of other Tuyeres, as every smith is capable of judging for himself, and will give merit where merit is due.

I will simply say that there has not been a single instance where I have had my Tuyere put in use but it has given full satisfaction, and is recommended by all who have used them, as being superior to any other ever introduced. I would invite all to give them a trial; and the names of those using them being given, I hope it may induce others to try them, they recommend themselves.

Western Railroad Shop,	Springfield, Mass.
"	Pittsfield, "
Connecticut val."	Springfield "
"	N. Hampton "
Hartford "	Hartford, Conn.
New Haven "	New Haven "
Norwich and Worcester,	Norwich "
N. York and N. Haven,	New Haven "
Saratoga and Whitehall,	Saratoga, N. Y.
Vermont Central,	"
Hudson and Berkshire,	Hudson, Mass.
L. Kingsley,	Canton, "

Hadley Falls Co. Ireland, W. Springfield, Mass.

Sidney Patch,	Boston,
Ames Manuf. Cor.,	Chickopee, "
American Machine w'ks,	Springfield "
Dean, Packard & Mills	" "
G. Frank Bradley,	N. Haven, Conn.
Andrew Baird,	" "
Collis & Lawrence	" "
Slate & Brown,	Windsor Locks,
Gage,	Nashua, N. H.
Machine shop,	Manchester, "
Louis F. Lanney,	Baltimore, Md.
J. H. Baerddid,	179 Chambers st. N. Y.
J. Fanning,	Rochester, "
G. W. Hunt	41 Gold st. "
Chamberlain & Waldo,	" "
P. S. Burges, carriage maker,	" "
Samuel Miller,	" "
J. Leggett,	Steverson falls, "
J. E. Harris,	Hillsdale, "
John L. Graham,	Albany, "
David Dalsell,	South Egremont, Mass.
Roys & Wilcock,	Berlin, Conn.

Agents for the sale of Tuyeres:

B. B. Stevens in New York and Connecticut.  
A. J. VanAllen has the Agency for the Western and Southern States, and is now travelling through those States. Any communication addressed to the patentee will receive prompt attention.

E. HARRIS, Patentee,  
Springfield, Mass.

November 23, 1849.

### Railroad Lanterns.

COPPER and Iron Lanterns for Railroad Engines, fitted with heavy silver plated Parabolic Reflectors of the most approved construction, and Solar Argand Lamps; manufactured by

HENRY N. HOOPER & CO.,  
No. 24 Commercial St. Boston.

August, 16, 1849.

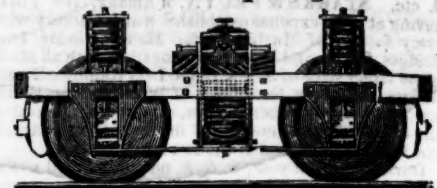
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### Gas Fixtures.

FIXTURES for Burning Gas for Lighting Public Buildings, Private Dwellings, Stores and Factories, manufactured by the subscriber in great variety. Orders by Mail, or left at the Factory on Causeway street, will be promptly attended to.

HENRY N. HOOPER & CO.  
Boston, March 23, 1850. 6m13

### F. M. Ray's Patent India-rubber Car Springs.



India-rubber Springs for Railroad Cars were first introduced into use, about two years since, by the inventor. The New England Car Company, now possesses the exclusive right to use, and apply them for this purpose in the United States. It is the only concern that has tested their value by actual experiment, and in all arguments in favor of them, drawn from experience of their use, are in those cases where they have been furnished by this company. It has furnished every spring in use upon the Boston and Worcester road, and, in fact, it has furnished all the springs ever used in this country, with one or two exceptions, where they have been furnished in violation of the rights of this company; and those using them have been legally proceeded against for their use, as will invariably be done in every case of such violation.

The Spring formed by alternate layers of India-rubber discs and metal plates, which Mr. Fuller claims to be his invention, was invented by Mr. Ray in 1844.—In proof of which we give the deposition of Osgood Bradley, of the firm of Bradley & Rice, of Worcester, Mass., car manufacturers, and men of the highest respectability. In this deposition, in relation to the right of parties to use these springs, he says:

"I have known Mr. Ray since 1835. In the last of May or the commencement of June, 1844, he was at my establishment, making draft of car trucks. He staid there until about the first of July, and left and went to New York. Was gone some 8 or 10 days, and returned to Worcester. He then on his return said he had a spring that would put iron and steel springs into the shade. Said he would show it to me in a day or two. He showed it to me some two or three days afterwards. It was a block of wood with a hole in it. In the hole he had three pieces of India-rubber, with iron washers between them, such as are used under the nuts of cars. Those were put on to a spindle running through them, which worked in the hole. The model now exhibited is similar to the one shown him by Ray. After the model had been put into a vice, witness said that he might as well make a spring of putty. Ray then said that he meant to use a different kind of rubber, and referred to the use of Goodyear's Metallic Rubber, and that a good spring would grow out of it." There are many other depositions to the same effect.

The history of the invention of these springs, together with these depositions, proving the priority of the invention of Mr. Ray, will be furnished to all interested at their office in New York.

This company is not confined to any particular form in the manufacture of their springs. They have applied them in various ways, and they warrant all they sell.

The above cut represents precisely the manner in which the springs were applied to the cars on the Boston and Worcester road, of which Mr. Hale, President of this road speaks, and to which Mr. Knevit refers in his advertisement. Mr. Hale immediately corrected his mistake in the article quoted by Mr. Knevit, as will be seen by the following from his paper of June 8, 1848. He says:

INDIA-RUBBER SPRINGS FOR RAILROAD CARS.—"In our paper yesterday, we called attention to what promises to be a very useful invention, consisting of the application of a manufacture of India-rubber to the construction of springs for railroad cars. Our object was to aid in making known to the public, what appeared to us the valuable properties of the invention, as they had been exhibited on trial, on one of the passenger cars of the Boston and Worcester railroad. As to the origin of the invention we had no particular knowledge, but we had been informed that it was the same which had been introduced in England, and which had been subsequently patented in this country; and, we were led to suppose that the manufacturers who have so successfully applied this material, in the case to which we referred had become possessed of the right to use that patent. It will be seen from the following communication, addressed to us by a member of the company, by which the Worcester railroad was supplied with the article upon which our remarks were based, that we were in an error, and that the springs here introduced are an American invention, as well as an American manufacture. How far the English invention may differ from it we have had no opportunity of judging."



# AMERICAN RAILROAD JOURNAL.

## STEAM NAVIGATION, COMMERCE, MINING, MANUFACTURES.

HENRY V. POOR, Editor.

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### American Railroad Journal.

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Saturday, June 8, 1850.

### An Essay on Pen and Pocket Cutlery,

*Embracing a Detailed Description of the Mechanical, Chemical, and Manual Operations Performed on Certain Raw Materials, to Convert them into the Means, Implements, and Materials, for Manufacturing Pen and Pocket Knives.*

BY A. L. HOLLEY.

Continued from page 338.

CHAPTER III.—BLADES DESCRIBED AND CLASSIFIED. FORGER'S IMPLEMENTS AND APPARATUS. COKE, ITS NATURE AND MANUFACTURE. MARKING, HARDENING AND TEMPERING—DIFFERENT METHODS. TABLES OF COLORS, BATHS, TEMPERATURES, ETC. IMPROVEMENTS. FUEL. BITUMINOUS COAL. CHARCOAL.

The different parts of a knife blade are called the faces, back, edge, point, neck, swages, tang and nailmark. The swages form a blunt edge, upon the blade's back, the corners having been removed.—They are of two kinds, the "common swage" com-

mencing at or near the neck, increasing in width toward the centre, and ending at the point of the blade. They are comparatively easily formed, therefore confined wholly to the coarser varieties of knives. The "knicked" or "cut-in" swage commences with a shoulder, usually near the point, and tapering, ends at the point. This is usually considered more neat and handsome than the other, and the forger receives a greater price for making it. The tang is the part of the blade which reaches from the cutting part to the end opposite the point, on which is the manufactory stamp, and the joint. The "shoulder" of the tang on its back, by striking the spring end, keeps the blade open, and at any desired angle with the handle. The "kick" is the part of the tang on which the blade rests when shut, thus keeping it from striking the edge on the back of the knife.

Blades are divided into three great classes, viz: job, pen and pocket blades. The first class is indescribable, comprising all odd and uncommon blades, each of which is adapted to some particular work. The next class is subdivided into spear, square, forward and blunder joints, and nail blades. On spears the joint is in the centre of the face, the edge and back terminating there convexly. The edge of square points should never be convex, and the point is the diagonal of a parallelogram. The edge of forward points is either hooking, straight, or regularly concave, the back being convex near the point. Blunder points are always concave on the edge, till within one-eighth or one-half an inch of the point, (which is like the spear) and there very convex. These blades are usually considered "homely," except by cutters, but are fashionable, and well adapted to cutting. Nail blades usually terminate with a blunder point, the face being files. These are especially adapted to cutting and trimming the nails, though convenient for other purposes. Pocket blades are divided into six classes, viz: forward and spear points, corboe, cemetar, razor and dirk blades. The two first are like the same varieties of pen blades, only shorter in proportion to their width. Corboe blades are similar to forward points, except shorter in proportion to their thickness and length, and the convexity of the back commences nearer the tang. The name implies the shape of the razor, dirk and cemetar blades. The nailmark is of two kinds, the "common," or crescent shaped, and the "French," which is a long straight impression very near the

back, commencing at the knicked swage, (for they usually go together) and extending to the tang and over from one-half to three-fourths of the face of the blade. This is considered more neat and handsome than the common mark. The nailmark is always on the "mark side" of the blade, though the mark side, as it is termed, of the knife, is the one on which is the nail nick of largest pocket blade.

We will first describe the old English manner and means of forging blades, though at present those of making all pen and most pocket blades. The forgers occupy a room by themselves, furnished individually with a forge somewhat smaller than a blacksmith's, and a trough and bellows in proportion. The chimney is very large, in order to give free passage to the gas and smoke in coking. The anvil, which runs at right angles with the outside of the forge that the operator may turn but one-quarter round to strike, is about 15 inches in length 5½ wide and 12 deep, sunk about six inches, and wedged into a large post, which is set firmly into the earth. In front of this is a stationary table, called the bench, from three to four feet long, and from 12 to 18 inches wide, with sides two inches high, and all covered with sheet iron, and a little lower than the top of the anvil, extending to the forge on the left, (for the operator always turns to the right from the fire to the anvil,) and some 12 inches on the right. Before this table is the wall, and a window. The surface of the anvil is smooth for some three inches on the right, with a shoulder in front, and convex toward the table, then filled with mortices, into which the bosses, chisels and gauges are wedged. The bosses for forging are blocks of steel, from one-half to two inches broad, and from three-fourths to two inches long, with square shoulders in front, convex outer edges, and surfaces level lengthwise, and convex the other way. The "bits" of the tongs, which are of different sizes, are on one side of the "shanks," that the bar of steel may project beyond the rivet. The hammers are iron, faced with steel, weighing from 2½ to 5½ pounds, into which the handles are fastened near the top. A small but hot fire is made of Liverpool coke, which is bituminous coal freed from all hydrogen gas, water and tar, and a large portion of its sulphur, by fire. It is either of a dull jet black appearance, or when made in a blade forger's fire, it exhibits a vitreous or metallic lustre, with a porous texture, and is not as heavy as raw

coal—for 20 pounds of the latter will produce but from 14 to 16 pounds of coke. It is valuable in proportion to the amount of carbonaceous substance it contains, and that coal is preferable which exhibits a soft, dull appearance of carbonized vegetable matter. Small pieces of coke may be occasionally selected from large quantities, that can hardly be distinguished from charcoal. For blast furnaces it is but a substitute for charcoal, and is manufactured in hearths in great quantities. In a dark night, the appearance of these long hearths is exceedingly grand and beautiful. In front the dark figures of the operatives, and the lurid fires blazing like a burning crater, and emitting dense columns of black smoke which rise to the clouds in the rear, may well remind one of Vulcan's Etnean forges, and the fires of the Cyclops and the Broutes.

For some purposes, coke is made in ovens from six to eight feet broad, eight feet high, and eighteen inches diameter at the top. In this country, blade forgers make coke daily, and enough at once for a day, by placing on the fire about three shovels full of coal, which is no sooner subjected to a blast from the twyes, than it begins to emit a very light brown thick smoke, which in the evening, as it slowly and heavily curls up, is very beautiful and well worth seeing. This smoke, which is exceedingly dense, is hydrogen gas and tar, with some sulphur, which is highly inflammable, and as soon as the least blaze from the fire below comes in contact with it, it instantly vanishes and leaves the dark mass of coal sending forth streams of fire from every point. As the heat increases, by constant stirring and a strong blast of wind the coal gradually expands, and becomes coke as above described, when it is sprinkled with water to quench the fire, and is then ready for use. The bars of steel, which usually measure from 3-8 x 3-32 to 1 x 1-4 inches, are cut into convenient lengths, and two at once placed in the fire. The first process is called "mooding," and consists of partially shaping the blade and cutting it from the bar. In this operation only one side of the blade is made, and the other left level with the bar. The next process termed "tanging," is forging the tang with a second heat, which in pen blades requires from 20 to 24 light blows from a good workman's hammer.—At the next heat the blade is "smithed." By this operation, the other face and shoulder of the blade are forged, the nail mark cut on a curved stationary chisel, and the swages struck. The blade is also trimmed, straightened, and brought to an edge, and its shape and proportions perfected, which require but a few strokes of the hammer. The steel must not be heated to too high a temperature, as before mentioned, and the tang in particular should not be hammered when cool, for in that case it is liable to draw forth sundry unpleasant screams, etc., from the drill which bores it, and sarcastic observations from the cutler who files it. The blade is then "choiled" by another hand; which consists of simply running a three square file once or twice through the neck or that which joins the cutting part to the tang, to give shape to the blade, and to remove the "fash" or superfluous particles which the forger leaves, and which cannot be removed by the grinder. They are then passed through a process termed "laying on," which is levelling the mark side of the tang and other parts which are to receive the manufactorial stamp, on grindstones, in order that the latter may not be erased when again ground and polished. The forger then receives the blades again, and places them in a long row on a steel plate over a slow fire, and as fast as

they turn blue at the temperature of about 590° F. the words and characters are impressed with a stamp of steel types. The best of these stamps or marks are made in Sheffield, England, probably with very small chisels, though there the art of cutting them is a secret. The object of blueing the blades is to slightly soften them, and particularly to color the letters which are sunk below the level of the tang, and if bright might be illegible.

Hardening is the next operation, which shows one of the remarkable and invaluable qualities which steel alone is known to possess, though from recent experiments on swords and coins by Drs. Pearson and Dize, it is supposed that the ancient Greeks and Romans were unacquainted with a method of hardening either copper or an alloy of some eight or nine parts copper and one of tin. If steel at a great heat is suddenly plunged into cold water, it becomes extremely hard and brittle, though the lower the heat sufficient to produce this effect the better the quality of the metal, and the greater its compactness the less the heat required. It is necessary also, in order to ensure an equal degree of hardness in all parts of the instrument, to thoroughly cleanse the surface previous to heating, as any oxide of iron will produce a contrary effect.—Saline solutions have been tried for hardening, also a current of cold air and mercury, but nothing has proved so effectual as water, provided the steel is heated to a low temperature. Oil is often tried particularly for large blades, being less liable to crack them than water.

To be continued.

#### *From the Baltimore American.* **Baltimore and the West.**

A number of the merchants of Baltimore were addressed on Thursday night by Mr. L. C. Haynes of Tennessee, at Union Hall, in respect to the advantages likely to result to the city of Baltimore from the completion of certain Tennessee improvements.

He stated the fact, and displayed the evidences on which it rested, that the commercial prosperity of the Atlantic cities depends on their commercial connection with the Mississippi valley.

Mr. H. said that a striking proof of this truth could be found in the examination and comparison of the commerce of Virginia and New York.—They are both Atlantic States—both started together in the race of independence, wealth, population and commerce—both possess harbors among the finest in the Union. Virginia had the advantage in the beginning. Her imports amounted in 1769, to \$4,255,800; the imports of New York to \$945,000. Thus they started together.

But New York, perceiving that her commercial prosperity depended upon her connection with the West, from which she might draw the materials for subsistence, manufactures and commerce, made haste to form that connection through her railways and canal. Virginia, self-satisfied with her natural advantages, did nothing to bring herself into commercial communication with the Mississippi valley. She slept at her post until a very recent date.

What, Mr. H. asked, had been the result? In 1832 the imports of Virginia had gone down from \$4,255,800 to \$1,213,000, while the imports of New York in the same period had gone up from \$945,000 to \$57,000,000. Why? Because New York was connected and Virginia unconnected with the rich, the fertile, the great and the growing West.

The tonnage of Virginia in 1791 was 33,239 tons, in 1838 it had gone down to 7,405 tons; while the

tonnage of the city of New York alone had gone up in 1838 to 400,971 tons.

Mr. H. said he repeated that it had become a primary truth, almost self-evident, which irresistibly commands the assent of all enlightened minds, that the commercial prosperity of the Atlantic cities depends on their commercial connection with the great valley of the Mississippi; and that Baltimore perceives and appreciates this truth, is made manifest through her noble and unceasing exertions to tap by the Baltimore and Ohio railroad the valley of the Ohio. And if Baltimore had come to the conclusion that one connection with the West would be good for her, it follows by irresistible deduction that two would be better.

It was under these impressions, Mr. H. said, he desired to direct the attention of the merchants of Baltimore to the advantages likely to result from contemplated lines of public works in Tennessee, by which this city is to have another connection by steam with the Mississippi valley.

Through a mixed route of railroads, river and canal, there is already an easy transit to Lynchburg. From Lynchburg to the Tennessee line, the Tennessee and Virginia railroad is in rapid and vigorous course of completion. At farthest, it will be finished in four years, the State of Virginia having taken three-fifths of the stock. If you start at Memphis East, you will find a company organized by the style of the Memphis and Charleston railroad company, with Gov. Jones at its head, and a subscription of stock to the amount of \$1,300,000. Running from Memphis, it will intersect the Nashville and Chattanooga railroad near the latter place. The Nashville and Chattanooga railroad was all, he believed, under contract. The actual subscription of stock to that work, together with the bonds to be guaranteed by the State of Tennessee, was \$2,588,450. It will be completed to Chattanooga by 1851.

The East Tennessee and Georgia railroad completes the line to the city of Knoxville. Funds have been subscribed by individuals and appropriated by the State, very nearly sufficient to complete this work in two years. Eighty miles are graded, on forty miles of which the timbers are down ready for the iron. An agent has been appointed by the Governor, under act of Assembly, to go to Europe to purchase iron for this work. The completion, then, in four years, of the entire line of works from Memphis on the one hand to the city of Knoxville, and from Lynchburg on the other to the Tennessee line, is as certain as any event depending on human agency.

From Knoxville to the Virginia line, a distance of 120 miles, it will be perceived, said Mr. H., is not as yet sufficiently provided for. It is true a company has been incorporated, engineers are in the field surveying the routes with a view to the location of the road, and a subscription made to the work of \$650,000. Shall this great line of public works about to stretch from the city of Memphis to the city of Baltimore be kept asunder by a failure to complete this central link from Knoxville to the Virginia line, but 120 miles in length? This is a question he came to put to the merchants of Baltimore interested in the trade of the West.

If you think this central link in this great chain from the father of waters to your beautiful city, would yield a fair dividend on the capital stock—if you think its completion would greatly enhance the trade of Baltimore with the Western merchants, we should be glad if you would aid its speedy construction by the subscription to its capital stock.



He said that the capacity of the merchants of Baltimore to trade with the merchants of the West is limited by their capacity to purchase of you.— Their ability to purchase of you is limited by the capacity of the people to purchase of them. The capacity of the people to purchase of them is limited, by the want of all adequate means of commercial intercourse, by which their surplus products can be carried to those points of demand where consumers lie under the necessity of purchasing them. If it should be your pleasure to give your aid to the construction of this line, you will greatly increase the capacity and ability of the people to purchase of the Western merchants, and them of you. Thus you might contribute powerfully to increase the trade of Baltimore with the merchants and people of the west.

Mr. H. said that a statistical view of the productions of Tennessee, unwooded by markets, and unstimulated by adequate prices, would indicate what would be the advantages of her trade were she and this city brought into cheaper and more rapid communication, by means of steam.

Mr. H. said Tennessee produces 13,000,000 of bushels of wheat. Deducting one half for consumption would leave 6,500,000 bushels for export. The highest average price in Tennessee, he said, was fifty cents. The total value of the sum which might be exported would be \$3,250,000. If brought to the Atlantic slope, it would pay railroad charges and yield 80 cents per bushel; or an aggregate sum of \$5,200,000, instead of \$2,250,000; and an increased profit to the wheat growers of Tennessee of \$1,950,000.

She produces, he said, 74,000,000 of bushels of Indian corn. Of this sum between two and three millions of bushels are exported, principally to N. Orleans, over a river transit of 1200 or 1500 miles. After deducting freight, insurance, commission and damage, it yields a very poor profit to the producer. To deduct one half for consumption would leave for export 32,000,000 of bushels. It is worth in Tennessee from 10, 15, to 20 cents per bushel. It would bear the cost of freight to the Atlantic cities and yield 35 cents. Here would be a gain to the corn growers in Tennessee over the highest market price at home of \$4,800,000.

The cotton crop of North Alabama, Middle Tennessee and North Mississippi, is about 400,000 bales. From Memphis, as the starting point, the cost of transporting a bale of cotton to the Eastern cities (compounded of freight, insurance, factorage, storage at New Orleans, re-shipment, with a new set of charges for freight and insurance coastwise, and the interest for thirty days incident to its transit to the Eastern cities) is about \$5.

It cannot be doubted that a large portion of this cotton would come to the Eastern cities over this line of Tennessee and Virginia works:

1. Because the freight would be as cheap.
2. Because over this line it would reach Liverpool some twenty days sooner than by N. Orleans.
3. Because it would, by this route, be 2500 miles nearer the foreign market.

The tobacco of Tennessee would come over this line; because, in the hot and damp climate of N. Orleans and the Gulf, it loses its flavor and incurs an estimated damage of ten per cent.

Flour and corn would also find their way to the Eastern cities by this route; because, in the climate of New Orleans, flour suffers a damage of 75 cents per barrel; and corn will average 25 per cent. less return than that shipped to foreign markets from the Eastern cities.

Bacon, pork, beef, butter and lard would also come upon this line from Tennessee, intended for foreign markets; because they suffer damage from 15 to 20 per cent. by way of New Orleans. Thus it may be seen that the damage on the articles named would very nearly cover the cost of freight from Tennessee to Baltimore.

This line, too, would be open for transportation from January to January; while it is only about three months in the year that the shipment of many of the articles specified would not be a total loss by way of New Orleans. It would also have advantage over the Northern routes by rivers and canals, because they are frozen up for several months in the year. These facts would certainly compel the larger portion of those articles specified, intended for distant markets, over this route.

#### Steam Explosions.

Within the last twenty years the use of steam has increased with almost incredible rapidity. By reducing the expense and saving time it has increased the amount of travelling a hundred fold, and for the transportation of merchandise, and for manufacturing and other mechanical purposes, it is rapidly taking the place of all other sources of power. Thus, either by travelling on steamboats and railroads, or in the industrial pursuits almost every person in the country exposes himself more or less to whatever of danger there is in the use of steam as a stationary or locomotive agent.

The proper management of this agent therefore becomes one of the most important questions which relate to the physical welfare of a people, and yet it has not hitherto been so managed as to prevent the recurrence of accidents of the most fatal character. The late Hague street explosion will long be remembered as one of the most terrible on record. There have been more recently on the Western lakes and rivers similar occurrences not much less disastrous. The explosion of the boiler of the steamer Wayne, on Lake Erie, is perhaps the most recent of the warnings of this kind. But they are frequent enough in all directions to call for the interference of the government by penal enactments, and especially by most thorough investigation of the causes of these accidents, and by ample inducements to the discovery of practical remedies.

There is no assignable limit to the power of steam, and yet it is always controllable. We do not doubt but that explosions sometimes occur as a result of gradually increased tension of steam. In such cases the common safety valve, if left free to act, is a perfect security. But with present knowledge and facilities, boilers are now generally so constructed that the danger from this cause is not great. The danger is of a different kind. It results from the recklessness, carelessness or ignorance of the engineer. If he is ignorant of the construction of the machinery, there may be a deficiency in the supply of water which he may not know how to remedy, or he may be inattentive and allow the water to get low, or for the purpose of temporarily generating steam more rapidly than would otherwise be possible, he may intent, ally keep the water low. But whatever may be the cause of it, the fact is beyond doubt that, in the great majority of steam explosions, the water has been so reduced that a portion of the boiler, and often a large surface, becomes highly heated, in many cases to redness. It is probable that the explosion results from a slight relief of pressure for a moment within the boiler, so that the remaining water is by violent ebullition thrown upon the highly heated iron, and instantly converted into steam of such tension that no boiler could resist it. Whether this is the correct explanation or not, the facts remain, that the water is low in the boiler, and that the iron is highly heated immediately before an explosion in almost all cases, and these are therefore the circumstances to which attention should be directed. There should be some means of pointing out this condition of things, something which should act independently of the engineer, and in such a way that he cannot control it. If it requires any care on his part, then it furnishes no security against his inattention or incapacity. If

he can control it, then it furnishes no security against his recklessness, the uncontrollable impulse of rivalry, or the intimidations of steamboat captains.

It has been suggested that these conditions would be fulfilled by making an orifice in the iron plate directly above the fire arch, and filling it with some such metal as lead, which would not melt while covered with water, and would not therefore interfere with the progress of the boat, or with the propelling of the machinery, so long as the water is kept at the proper level in the boiler. If the water, by intention or accident, falls below the fire plate, so as to allow it to become highly heated, this metal will melt out, and the orifice will discharge steam into the fire arch.

There would, of course, be inconvenience arising from such an occurrence, because the necessary repairs cannot be made without access to the inner surface of the boiler. But to workmen and passengers this inconvenience is the price of safety, and in reference to the engineer it is the best pledge of his fidelity. The rank of an engineer has become such, that but few men of careless or dissolute habits are thus employed. They are generally sober, well informed and trustworthy, and therefore do not need to be thus watched. This class of engineers however do not object to being watched. But an ignoramus or a desperado will sometimes get employment in this capacity. It is therefore to be expected that some engineers will object to carrying such informers of their remissness as the fusible metal would be. But the public have interests of their own to which they ought to look.

We are informed that about two years since Massachusetts required by law, that all steam boilers should be supplied with a rivet of fusible metal in the fire-plate, and we are not aware that any explosion has occurred since that time within her limits. In the Report of the Commissioner of Patents to the Senate, about a year since, it is stated that a similar law has existed in France for twenty five years, and that explosions scarcely ever occur there. There is an urgent necessity for a law of the kind in this country, and for such a supervision that the law cannot be evaded.—N. Y. Recorder.

#### Counsel to Inventors.

In the Mining Journal of February 23d, there appeared a notice of a work on *Copyright in Design in Art and Manufacture*, from the pen of Mr. T. Turner, of the Middle Temple, which we spoke of as a lucid work on the subject, and one which was likely to prove a useful companion to the lawyer, patentee and inventor. We have now before us another letter on a similar subject by the same author, who has evidently made himself master of its general principles, under the title of *Counsel to Inventors of Improvements in the Useful Arts*. Mr. Turner, in his preface, states that the volume is addressed to those who belong to, or connected with a class at once denoted and reproached by the term "projector," to whom we owe no small portion of our national prosperity; its aim being first—to offer some suggestions as to the cultivation of the fields of useful invention, and the settlement of new tracts of its territory; and second, to exhibit the inventor's legal position in the general features of its privileges and conditions. The first of these is generally dealt with under the head of the value of invention, comprising inventors, inventions, the value of, and their natural and artificial limits, with the kind of remuneration which has generally been awarded them; and the second, under the head of property in invention, comprising the rights of inventors, a general and well classified consideration of patents, and what is patentable, with registration, specifications and proceedings. In speaking of the moral qualities of an inventor, necessary to insure success, the author says:

"Every object that occurs must be cross-examined, to learn something from it suited to the purpose in hand, every stone turned that may have knowledge under it. Glauber's rule, it is said, was to examine what every one else threw away; and it is obvious that the inventor must succeed by seeing deeper into, or farther off, or more widely, or from a new point of view, the same objects that are visible to all. Sir J. Herschel prettily describes the various parts which iron plays in the thoughts of different men. With the vulgar an incombustible.

The chemist not only burns it rapidly, but esteems it, from its affinity to oxygen, a decidedly inflammable element. It is the poet's emblem of rigidity, the engineer's most plastic material; the goaler values it as an obstruction, the electrician as the freest of communicators. He might have added the physician, who knows it as a means of invigoration, and the warrior, whom it enables to devastate and destroy, while the astronomer would find its highest interest in its presence in the meteoric stone, to him a sample of the mineralogy of distant worlds and systems. So Crompton witnessed a process of rolling iron; he saw in it a mode of spinning cotton filaments. Sir R. Seppings observed the framework of a Swiss bridge; he adopted the principle of it into the dockyard, and revolutionised shipbuilding by his diagonal framing, the substitution, viz: of systems of triangles, the strongest rectilinear combination, for the square, which, at every strain of the ship, racked itself to pieces."

There are, throughout the volume, some well-timed allusions to, and extracts from, some of our most popular writers on scientific subjects, such as Babbage, Baines, Ure, Whewell, Faraday, Bentham, and others, which apply most correctly to the subject. Among these, we cannot resist the opportunity of quoting the following from Mr. Babbage's work on manufactures, of which the author has availed himself; it shows, in a striking point of view, the facilities afforded by Nature for the production of all our mechanical results, and how necessary it is for an inventor or projector to make himself acquainted with the most minute details of the properties of matter to arrive at success:

"With reference to the kinds into which artificial processes are divisible, the most systematic treatment of the subject will be found in Mr. Babbage's work on manufactures. One main distinction separates. 1. The power-affording machines; and here one section must be set apart for animals, which (as horse power) often precede, and are used to measure forces substituted for them; and then the section of inorganic agents will consist of elements, wind and waterwheels, and of automata, such as those of steam, gunpowder, galvanism, in which we seem to make power, or rather we call it forth from a dormant state, and, unlike Hotspur's assistants, it comes when we call it. In the elemental section we find the force sweeping down the channel, or over the country, and merely arrest it and change its direction by the windmill, sail, or waterwheel. 2. Having from any of these sources an amount of power under control, we expend it on saving us time and trouble; thus, the copper wire supplies no electricity, but conveys it from place to place to write our letters for us. Having got the power into the waterwheel or axis of the sails, the millstones grind by it the corn. Mr. Babbage's third section, arts that economise natural properties, can hardly be co-ordinated with these. Glass making might be an example of it, in which the rubbish that strews the shore, the seaweed, Byron's emblem of worthlessness and neglect, aids us to rival Nature's choicest rarities, and with the abundant plenty of the furnace to outvie the crystal of the cave. We shall avail ourselves in part of the same author's more elaborate classification of machines (and tools, which admit of no definite line of demarcation from them), according to the services they render. The heads are, 1. Those that store up power, the fly wheel. 2. Those which regulate it, the steam governor. 3. Economists of material, the saw (at least, in comparison with the hatchet, for it is itself inferior to a blade, which, under machine power, slices off a veneer, without the loss of a grain of saw dust.) 4. Economists of time, as when hammers are arranged to strike a rapid succession of blows 'while the iron is hot.'—Another proverb is still open to verification by some future engineer, who may set steam power to turn all the hay 'while the sun shines;' science has already, by its barometer, gone far toward telling when it will shine. 5. Clocks, which take in power in the mass, and retail it out in small parcels. 6. Time savers in certain physical changes in bodies, as bleaching, tanning, seasoning timber, etc. It is worth notice, that Nature does not always like to be hurried, and the result exhibits an inferiority to that obtained by leaving to her own pace. Our shoes are not made now with the leather of the good old times; and the same chlorine which so

rapidly takes all the stains out of the linen takes out some of the strength. It is not certain that the long years spent on some of our old buildings had not, like the slow growth of a timber tree, a share in giving them durability. A result obtained too great for the mere muscular power of man. Mr. B. instances a Bramah's press, by which, on one occasion, a workman, exerting a pressure equal to 1500 atmospheres, burst a 3-inch thick iron cylinder. This is in reality only a variety of the first class, both being cases of accumulation. 7. As the human arm fails in power, so human sense, unassisted, fails in delicacy; hence means of filtering, singeing off the down of lace, and again, magnifying instruments for the eye. 8. Counting machines, inanimate bookkeepers and historians. The most splendid instance is the calculating engine, which, in its fullest development, is due to Mr. Babbage. There are many minor ones, as the gas meter, and the tell tale, which ensures the fulfilment of the watchman's rounds. 9. Means of identity in copies, and accuracy in all cases. We can only notice briefly the arts of reproduction; printing on surface; moulding on forms; copying with variation of size, as the pentagraph; of form, as the lathe, allied to which is the printing cylinder; and of reversed symmetry, as when a right handed shoe last guides the cutting of its fellow. All these are highly illustrative of the importance of repetition as a ground for employing machinery, and in most of them the cost of the original infinitely exceeds that of the copy. One engraved steel plate has yielded 80,000 impressions, and the last was perfectly interchangeable with any of its predecessors. If 80,000 copies be insufficient, Perkins' process, or the electrotpe art, will copy the metal plate itself, and supply any multiple of 80,000; and where less minute delivery is needful, even this estimate is exceeded. It is said that in the Times office a type does not get its discharge, till it has gone through its exercise, 14,000,000 times."

We cannot further follow our author through his interesting volume, which will be read with interest by every lover of science, and while thousands of facts are collected, which bear immediately on the subject under notice, the whole is contained in only 100 pages—a task at which we think no reader can be wearied. The following is his concluding passage, and is from the Edinburgh Review:

"When a principle is fairly studied, inventions are simultaneously made in many places at once; the electric telegraph, screw propeller, and a host of others, are disputed by an hundred rival claimants; chance, we thus perceive, did not produce those discoveries, nor could it, therefore, have prevented their production; will directed education will make the creations of the human mind more abundant, as printing has already secured their indestructibility."—*Mining Journal*.

#### New Application of Steam Power in Navigation.

We have had an opportunity of examining the new application of steam power in navigation, for which the ingenious inventors, the Messrs. Ruthven, of New street, have secured patents both in this country and in the United States of America. The disadvantages of the paddle wheels in steam vessels are too well known to require enumeration. The attention of the Messrs. Ruthven, of Edinburgh, whose names rank high as engineers, has, it seems, for a long period been directed to this subject. The result has been the discovery or application of a new method of propelling and navigating steam vessels. The arrangement consists in the forcible expulsion of water from a nozzle or bent pipe at each side of the vessel, which is effected by the power of the steam engine. The form and properties of a sailing vessel are preserved, there being no projections on the hull in the form of paddle boxes or otherwise. Under the engine, which is placed in a horizontal position, is a round iron case, in which there is a wheel, having a shaft through what is termed a stuffing box, on the upper or outer side. The piston of the steam engine is attached to the shaft cranks, and the steam power is applied wholly to revolving the wheel in the iron case, which, being made something like a fan wheel, carries the water with it in its revolutions. The water, in obedience to the laws of centrifugal

motion, presses towards the outer rim of the case with a force proportionate to the speed, and escapes by an aperture and pipe at each side, whence it is discharged by the nozzle or bent pipe, into the sea. The water is supplied to the iron case by a large flat pipe, which has a free communication with the sea by means of apertures in the bottom of the vessel. The nozzle is above the water line, and can be turned by the seamen on deck with the greatest facility, so as to discharge the water either towards the bow or stern. Discharging the water a-stern, makes the vessel go a-head; when discharged towards the bow, the vessel goes a-stern; and when discharged downwards, the vessel remains stationary. These operations are effected without the engine being altered or stopped—a material improvement on the paddle wheel; and as the elevation of one nozzle is rapidly altered independently of the other, ample facilities are given for turning the vessel. The absence of obstruction on the hull enables the vessel to use sails with as much effect as a common sailing vessel; while the steam power may be perfectly combined with the action of the sails—an advantage denied to a steam vessel, except to a limited extent. It is difficult to convey an adequate idea of the improvements without an inspection of the mechanism—an inspection, however, for which Messrs. Ruthven are anxious to afford every facility, having constructed a model of a vessel, 12 feet in length, for the illustration of the improved method of propulsion.—*Edinburgh Evening Courant*.

#### Scotch Pig Iron Trade.

Having from time to time observed articles in your Journal, in reference to the production, cost, etc., of Scotch pig iron, which are calculated to mislead, and knowing that you wish to correct error and advance that which is correct, for the information of your subscribers, I am at length determined to address you on the subject, having hitherto refrained, hoping that some other parties might do so; but as several articles have also recently appeared in the local papers, having a tendency to depress the trade, and destroy the confidence of parties at a distance, I beg to make the following remarks:

At the close of the year, the stock of pig iron in Scotland, in makers' and storekeepers' hands, was variously estimated from 165,000 to 195,000 tons—the former quantity being the nearest correct; and as the present price of iron is not remunerating to the makers, it is not at all likely that any more furnaces will be put in blast; it may therefore be safely assumed that the make for the present year will not exceed 640,000 tons. The foundries in this neighborhood being much better employed this year than during the last, as also the Malleable Iron Works, it may confidently be expected that, should the export demand only keep pace with that of last year, though in all probability it will be considerably more, as Scotch pig iron is finding its way into almost every market in the world, there will be a reduction of stock at the close of the present year, instead of an increase. Our local newspapers insert from time to time the shipments from Glasgow, and draw comparisons therefrom; but owing to the large quantities of iron now shipped at the outports, conveyed there by railway from this, the exports from Glasgow are no criterion. Shipments direct from this have fallen off this year, owing to several reasons. The first, very boisterous and bad weather in the months of January and February, and great scarcity of vessels, which continues in some measure to the present time; and from founders, etc., in Lancashire and the north of England having drawn their supplies from Runcorn and Fleetwood during the time of low charges by the railways and canals, so that the stocks at these places are reduced. They have at present through those districts been working on their supplies, and when they require to come into the market again, they must look in a great measure to Scotland.

From the foregoing, it will be seen that the prospects for Scotch pig iron are far from gloomy; and when the extraordinary enterprise of our engineers is considered, whether in the construction of tubular bridges, in shipbuilding, as also in housebuilding, it may reasonably be expected that the demand will fully keep pace with the increased production



and a fresh impulse will be given to the industry of the country.—*London Mining Journal*.

#### Production of the Precious Metals in Russia.

[The following are extracts from the report of the Austrian Commissioners on the Exhibition which took place last year in St. Petersburg.]

**Precious Metals.**—The wealth of Russia in precious metals is known to be very great. The mines are situated principally in the Ural and Altai mountains, and the lower range of hills which surround Nertschinsk, in Siberia.

**Gold.**—This is always an interesting topic, but doubly so at the present moment, and we shall, therefore, quote the report of the Austrian commissioners respecting it rather fully. The mines in which gold is found belong partly to the imperial domains, and partly to individuals; they are found in the largest numbers in the neighborhood of Katherinenburg, in the government of Perm, which is the seat of the superior administration of all the mines of Perm and Siberia. Gold washings exist in the district of Wertheim, in the government of Perm. Large quantities of gold are also found in Eastern Siberia; the first discovery of its existence was made in 1829. The mines on the Ural were not worked until 1814, and those on the Altai not before 1830. The gold found in the sand is of various forms and weights—pieces weighing 16 and even 24 pounds have been discovered; but the shape in which it is chiefly found is a fine sand.—The mines in Siberia can only be worked during four months; and the gold hunters are compelled to obtain a license from the Minister of Finance.—The crown has a royalty of from 20 to 24 per cent. on all gold found, and every pound of gold pays four roubles for police and other purposes. The import and export of gold in all shapes is duty free. It cannot, however, be exported from the western frontier of the empire. The annual publication of the St Petersburg Academy, for the year 1849, contains the official returns of the amount of gold obtained in the year 1847. The following table refers only to the mines on the Ural, which, it will be seen, are by no means so productive as the mines in Siberia:

#### From the Crown Mines on the Ural.

Katherinenburg.....(poods)	35
Slatoust.....	48
Bogoslowsk.....	34
Gowblagodatask.....	10—127

#### From Private Mines.

Werch Isetsk.....(poods)	48
Kactinsk Kaschumsk.....	13
Nischne-Tagilsk.....	28
Sysert.....	27
Newiansk.....	10
Schaitansk.....	6
Bilimbajewsk.....	2
Krestowosdwhenssk.....	18
Wsewoloshskisch.....	6
Werchne Ufaleisk.....	2
Itabansk.....	10
Other mines.....	18—196

Siberia produced in the same year the enormous quantity of 1456 poods. In the previous year the produce was 1677 poods.

**Platina** is found in the Ural Mountains; the mines being worked by the government and by private persons. The quantity produced annually has decreased very much of late years; in 1838 it averaged about 40 poods, while in 1847 it did not amount to 2, and in the following year only very little more. The present price is about 3600 silver roubles per poode. The exportation of this article is entirely free; manufactured platina is subject to an *ad valorem* duty of 25 per cent. France is the chief recipient of the platina exported from Russia.

**Silver** is found in the Altai and Nertschinski mountains. The latter produce on an average about 207 poods annually. Some silver mines exist also in the Ural Mountains, but were only discovered in 1834. It may be imported and exported duty free, with the exception of exportation on the western land frontier. The total quantity of silver produced in 1846 was 1191 poods.

The various articles manufactured from the precious metals are described as of high finish and great elegance. The silver articles were more par-

ticularly remarkable. This branch of industry is a very ancient one in Russia, and is principally distinguished for the remarkably fine silver chains that are manufactured in large quantities in Ustjug Welski, a town in the government of Wologda.—These chains are not thicker than an ordinary thread, and are worn by the lower orders to suspend their crosses on. They are principally made by women. Gold and silver articles pay an *ad valorem* import duty of 35 per cent. The plated articles exhibited were held by the Austrian commissioners to be a convincing proof that Russian industry has rendered Russia independent of the foreigner in this branch.—*Min. Jour.*

#### Providence Railroad.

The following report by the directors of this corporation is certainly a model for brevity. It is reported in the street that the July dividend will not be more than two and a half per cent upon the par of one hundred dollars per share, and this has caused the recent decline in the market value of the stock. The friends of the road, however, contend that there is little doubt that henceforth the regular half yearly dividends of three per cent. will be earned and paid to the stockholders.

#### Report to the Annual Meeting, June, 1850.

The directors present their annual report to the stockholders.

In the report made at the last annual meeting, a full statement was given of the operations of the corporation, in reference to the large expenditures which have been made on construction account, since April, 1846, and of the reasons which influenced the directors and stockholders in entering upon them; and it is deemed unnecessary to repeat here what was then said.

During the past year, no extraordinary expenditures have been made, and, in the opinion of the Directors, the interests of the corporation will, hereafter, require none on construction account. In their opinion everything has been done which it was necessary to do to complete the road, and everything which can be done to protect it from further injurious competition.

The competition from other lines of travel for a portion of our business, has been very severe, and we have felt the effects of it in our operations of the last year.

The receipts for the year ending July, 1850, (estimating the receipts for May and June, to be the same as in the corresponding months of 1849,) will be \$349,870 93; and the expenses, (estimating as before, and including all payments of interest,) \$179,870 93.

For the six months, ending July 1st the receipts will be \$166,950, and the expenses, \$87,626 29.

The receipts of the corporation, as compared with the preceding year, have fallen off \$15,555 85, and the expenses have been reduced \$7,682 77.

The capital stock has not been increased since the last annual report; but bonds of the corporation have been issued to the amount of \$207,000, payable in five years after date. The interest which has accrued upon these bonds, and which will accrue before July 1, is included in the statement of expenses made above.

The West Roxbury branch is now completed, but there are claims for land damages still unadjusted—some of them of considerable magnitude, which renders it impossible to say what will be the exact state of the affairs of the company when they are liquidated.

In the opinion of the directors—estimating as well as they are able to do, the amount of these damages—these debts of the corporation, after the payment of the July dividend, will be about \$300,000, including the amount of bonds already issued.

We have land in Roxbury, Canton, Pawtucket, of the estimated value of \$25,000, which is not needed for the purposes of the road, and which may be disposed of without injury to its interests.

We have also \$40,000 of the capital stock of the Stoughton branch railroad.

During the year, freight houses have been built at Mansfield and Attleboro'.

It has always been the policy of the managers of this corporation, to keep the roads and buildings in

perfect repair, and their present state is entirely satisfactory.

During the year, the trains upon the road have been run with great regularity, and with such a degree of safety, that no passenger has sustained the slightest injury.

At the late session of the Legislature a charter was granted, authorising the construction of a railroad from South Dedham to Boston. The completion of this road would, probably, affect the interests of this corporation to a very slight extent.

If the whole business of the Norfolk county road now brought upon our road, should be transferred to the new corporation, the loss to us, as appears by the experience of the past year, would be somewhat less than \$4,000. To this extent, the new road would be a competitor with ours. It would also be a competitor with the Norfolk County road—as all business carried to it from that road at South Dedham, would involve a loss to the Norfolk County road of the profits of transporting passengers and freight upon five miles of their road—the distance from Dedham to South Dedham.

Whether the managers of the Norfolk County road would transfer their business to the new corporation, at the sacrifice of their profits upon nearly one-fifth of their road, will be a matter for them to determine. Of course, they can have no inducement to do so, unless the new corporation can offer them so much better terms as will more than compensate them for the loss of one-fifth of all their through business. If such terms are to be offered, the experience of our corporation will enable the stockholders to judge of the probability of the construction of the newly chartered road, and the public to form an opinion as to its value, should it be built.

C. H. Warren,  
John Barstow,  
Wm. Amory,  
May 25, 1850.

#### Indiana.

##### Wabash Navigation Co.

We copy from the Cincinnati Gazette the following account of the operations of this company, which has for its object the improvement of the Wabash river, by making slack water over the rapids at Vincennes:

"The Wabash Navigation Company was chartered by Indiana and Illinois in the winter of 1846 and 1847; preparations for the work were made in the fall of 1847, and it was intended that it should be completed in the fall of 1848. The lock was completed, and the dam was nearly finished, when all work was stopped by the flood, and a part of the dam was washed away; in the fall of 1849 the work was resumed, and the dam was completed about the first day of November last. The lock is the largest in the world, being sufficient to pass a boat fifty feet in width and two hundred and thirty feet in length; a little wider and considerably longer than the Louisville lock. The stock of the company is mostly owned at Vincennes. In consequence of the partial destruction of the dam in 1849, at certain stages of the water, steamboats and flatboats could and did safely pass through the dam. But the dam as it was, did increase the water on the rapids; and hence at certain other stages of the water the lock was used; and hence too, there was an increased steamboat navigation on the river in 1849. Steamboats passed the lock at the rapids of the Wabash in each month of the year 1849. The following statement is taken from the reports of the Collector of tolls, on file with John Ross, Esq., secretary of the company. The steamboat passages through the locks in each month of 1849, were as follows: January, 8; February, 11; March, 35; April, 35; May, 26; June, 4; July, 2; August, 4; September, 2; October, 4; November, 3; December, 36—total 152 passages, or 76 steamboat trips up and down, proved by the tolls paid. How many passed through the breach in the dam is not known—but probably as many more. The following is a continuation of the above statement to the last report: January, 1850, 51; February to the 22d, 45—total 96 passages. And the following is a statement of the whole business for the present season: November, 3; December, 36; January, 51; February to the 23d, 45; total 135 passages. The writer has himself seen lately the following boats in the

Wabash with full cargoes loaded for, or at, New Orleans; Tribune, Globe, Dove, North Carolina, and Warrior. On the evening of the 20th February, there were three boats at the Vincennes landing; one from New Orleans, one from Cincinnati, and one from Lafayette; at the stage of water at that time, but for the dam there would not have been more than three feet six inches on the rapids. It is well known here, that Vincennes packed pork shipped by steamboat to New Orleans, was on sale at Boston on the 1st February—and from the reports above mentioned it appears that toll has been paid this season on 4,115,131 lbs. of bulk pork, and on 36,647 barrels of pork; less than half the quantity packed on the river."

A report made some time since the statement of our correspondent came into our possession, shows the business of the Wabash improvement for a period of five months—commencing on the first of December last, and ending on the first of May.—The total number of steamboats that passed the lock within this period, was 245; the total number of flatboats, 140. The number of passengers moving up and down during this time, is stated at 2,650.

Among the articles of freight passed through the lock during the period of 5 months above specified, were 50,735 bbls. of pork, 7,666,578 lbs. bulk pork and bacon, 1,994,645 lbs. lard, 1,483 live hogs, 129 cattle, 1,974 dozen poultry, 325,794 bushels corn, 1,000 bushels wheat, 55,092 bushels oats, 1,484 bushels rye, 82 bushels barley, 18,613 bbls. salt, 6,278 sacks salt, 1,290 bbls whiskey, 3,065 bbls. molasses, 7,339 bbls. flour, 161 bbls. apples, 2,852 bushels potatoes, 319 bbls. lime, 93½ tons hay, 145,338 feet lumber, 20,000 staves, 21,185 hoop poles, 8,574,081 lbs. merchandise, groceries, etc.

The descent of the Wabash at Vincennes, is about 9 feet within a distance of three miles. The height of the dam raised is 13 feet, which gives the supply of 4½ feet of water in the channel over the rapids, when the river is at its lowest stage. We wish to call to this fact, the particular attention of the "well enough but tardy" friends of a railroad communication between Cincinnati and the Wabash valley. By the excellent improvement at Vincennes, boats 50 feet wide, 230 feet long, and drawing 4½ feet water, can navigate the Wabash at all seasons of the year when there is no obstruction by ice.

**Jeffersonville and Columbus Railroad.**—The annual election for directors of this company took place on Monday, and resulted in the choice of the following gentlemen: Jas. Guthrie, Wm. A. Richardson, and James Keigwin, of Louisville, Dr. Columbus, Woods Mabury, A. Wathen Geo. Savitz, Henry French, Samuel Merriwether, and Wm. D. Beach, of Jeffersonville, Mr. Kester, of Jackson county, and Mr. Irvin of Bartholomew county, Indiana.

We learn that by Wednesday or Thursday of this week, the water will be let into another division of the Wabash and Erie Canal, between Terre Haute and Point Commerce, a distance of forty miles. Mr. Butler states that the section between Terre Haute and Point Commerce, now ready for navigation, is most substantially built, and such is the character of the soil through which it is built, he thinks the canal will as soon as the water is let in, be ready for navigation. The above addition will make the whole extent of the Erie and Wabash opened for business 350 miles.

#### Illinois.

The Alton (Ill.) Telegraph of the 7th ult. says:

We are much gratified to be able to inform our readers that J. B. Danforth, Esq., one of the eastern

directors, A. T. Cowman, Esq., principal contractor, and Isaac Gibbon, Esq., secretary of the Alton and Sangamon railroad company, arrived in this place a few days since, from New York, and are now, in connection with the local directors, engineers, and other officers, making the final preparations for the immediate commencement of the work. The line between this city and Brighton, we understand, is nearly or quite ready to be put under contract; and we trust operations will be commenced without delay.

**Aurora Branch Railroad.**—J. L. Hanchett, Chief Engineer, made a report on the 21st ult., relative to this road, from which we learn that the amount now under contract is \$16,086.

Every exertion has been made during the winter to procure timber for the superstructure. A great number of logs have been delivered at different mill yards along the line, of suitable lengths for rails, in case the flat iron should be adopted. The timber has been procured at different points for bridge purposes, and ties for the whole length of the road have been contracted for, which are rapidly being delivered on the line.

The contracts for grading the first 11½ miles provide that the first six miles shall be completed by the 1st of June next, and the balance by the 1st of August following. Should the iron be procured in time to lay it down as soon as the grading is done to Batavia, 6 miles may be in readiness for business as early as the 4th of July next, and to Aurora about the 1st of October next.

The amount of furniture that this company will require for doing business in connection with the Union road, will vary not far from \$16,000. Temporary buildings and water stations at the Junction, Batavia, and Aurora, \$3,000.

The estimates for the whole, amount to \$92,608, as follows:

Grading, bridging, etc.	\$34,054
13½ miles superstructure, (flat rail)	33,054
Distributing materials, laying track, &c.	6,500
Amount of furniture required	16,000
Temporary buildings and water stations	3,000
Right of way and fencing	3,000

Total.....\$92,608

In case the T rail should be adopted, the cost of the road will be increased some \$40,000.—*Chicago Democrat.*

#### Ohio.

**Railways around us.**—Our neighbors at Louisville and Maysville are pushing forward with commendable energy their railway connection through Lexington and Frankfort, and the Alabamians and Tennesseans are engaged in the construction of a railroad to intersect this line, which will connect the south with the Ohio at Maysville and Louisville. There is, it is true, a preferable route for a railway connection of the Ohio with the heart of Kentucky and the south, from Covington opposite this city, to Lexington, though but little is effectually done to push on the work. The people of Kenton county by a large majority, determined to tax themselves to aid this road, but we understand that the County Court have refused to make the assessment necessary to carry out the vote of the people! If this road is delayed much longer, the other roads will be first completed, and have diverted much trade and travel, which it will be very difficult to regain.

The iron for the road from Dayton to Greenville will be ready and laid down in a short time.

The road from Dayton to Springfield is nearly ready for the cars.

One third of the grading on the road from Ham-

ilton to Eaton will be done by the middle of July.

The continuation of the road from this city to Hamilton is progressing very rapidly, and the iron is coming forward in time to be used, as soon as the road is ready.

The Little Miami road is being thoroughly repaired, and straightened, and the flat bar is giving place to the heavy T rail.

Strong efforts are making to push on the road from Pittsburgh to and through Bellefontaine to Indiana.

And our friends in the Scioto valley are busy in completing the arrangements to commence the Belpre road east of Hillsborough.—*Cincinnati Gazette.*

**Central Railroad Lettings.**—The directors of this road—including Mr. George M. Parsons and W. Dennison, Jr., both of Columbus, have been engaged for the last two or three days in examining the bids, and awarding the contracts on that portion of the line between Zanesville and Newark. The contracts are made at what we should think very fair prices. The bidders are men of character and sound experience in the business of road making.

At the same meeting of the board the following resolutions were adopted:

Resolved, That a committee consisting of the President and Geo. M. Parsons, Esq., be appointed, to proceed at once to Springfield and Dayton, for the purpose of enquiring into the propriety of extending the line of operations, westward from Columbus.

Resolved, That the board meet at the Neil House, in Columbus, on the 26th day of June next, and that the adoption of the line of our railroad into Columbus shall be made at that meeting; provided, however, that no location shall then be made unless one hundred thousand dollars of available subscription to the stock of the Central Ohio railroad company, be provided in Franklin county.

That portion of the directory residing in Columbus, have not heretofore been in the habit of attending the meetings of the board in Zanesville. We were pleased to meet them here on this occasion, and we were specially pleased at the deep interest they manifest in the prosecution of this great work. We hope it augurs well for our future success.—We now feel confident that two years will not elapse until Columbus and Zanesville will be bound together firmly, and to the advantage of both, by a band of iron.

We trust that that our friends between this and the Ohio river, will at once catch a little of the flame that is beginning to burn west of us.—*Zanesville Cour.*

#### Pennsylvania.

The Lebanon Valley railroad project is going ahead. It is a rich and beautiful valley, and considered merely as an outlet for its agricultural produce, we think the road would pay expenses. But there is an abundance of iron ore in the valley, as also limestone, which, added to the accessibility of coal at all seasons, give it important advantages for iron manufactures. If the iron trade ever revives, Lebanon valley must become widely known for its manufactures. We passed over the route the other day, and have made up our mind that the road will pay, and that it ought to be made. We learn from the Courier that the whole of the stock of the North Lebanon railroad company, was taken on Monday week, by the Messrs. Coleman, but that the work upon it will not be commenced until it is ascertained what will be the location of the Lebanon Valley railroad, with which it is designed to connect.—*Miner's Journal.*



**New York.**

**Troy and Schenectady Railroad.**—The following gentlemen were, at a recent meeting of the Common Council, designated as the directors of this road: Elias Plum, Russell Sage, Hiram Smith, T. Symonds, Griffith P. Griffith, Hiram Slocum, E. Carpenter, D. T. Vail, Thomas Bussey, Benjamin Hatch, Uri Gilbert, Wm. D. Haight and Harvey Davis.

**Northern Railroad.**—The Champlain and Ogdensburg railroad is completed to Chauteaugay, 45 miles and the cars leave that place every evening at 6½ o'clock, and Rouse's Point every morning at 3¼ o'clock. Passengers by this route arrive at Ogdensburg in the evening by stages from Chauteaugay.

**Virginia.**

**Central Railroad.**—The counties of Greenbrier and Monroe have each voted a subscription of \$50,000, for the purpose of aiding the construction of the above road from Augusta to Covington.

The State has authorised a subscription of \$420,000 to the above work. From the liberality with which the work is encouraged by the people along its line we see no difficulty in the way of its early construction.

**Col. C. F. M. Garnett.**

Since our last notice of this gentleman, we have learned more distinctly the nature of the appointment with which he has been honored by the Memphis and Charleston railroad company. He has been selected as the Engineer-in-Chief of that great work, and has accepted the appointment, with the understanding, that he will devote as much time to the duties of the office as he can consistently with his obligations to the Virginia and Tennessee railroad. The arrangement made is highly satisfactory to our board of directors. The board, and Col. Garnett also, rightly consider the Memphis and Charleston railroad as but a prolongation of our road, and that we are all deeply interested in its speedy construction. When finished, even if initiatory steps had not already been taken, the construction of a road, to connect it with the western terminus of our road, would be inevitable. Tho' constructed by different corporations, the line from Lynchburg to Memphis will be, in fact, one great work.

The appointment thus conferred by those who have had the most ample means of judging of the merit of Col. Garnett, with the knowledge that only a small portion of his personal supervision could be given to the work, is the highest testimonial which his friends could ask of his professional standing.—*Lynchburg Virginian*.

**Origin of Coal.**

The immense beds of bituminous coal found in the valley of the Ohio fill the mind with wonder.—Age after age, successive growths of plants, springing up in the same region, were entombed beneath thick strata of shale, to the depth of more than 1,000 feet; while beneath the whole lay the bed of an ocean, floored with fossil salt. Indications of coal are found at intervals, across the great valley, from the Allegheny to the Rocky Mountains. It is found near the surface in Ohio, Kentucky, Indiana, Illinois and Missouri, and without doubt may be found beneath the extensive territory deposits which form the substratum of the great prairies in the central and northern parts of the Western States. As low down as New Madrid, on the Mississippi, coal was thrown up from beneath the bed of the river, by the great earthquake of 1812—a sufficient proof of its continuation in the most depressed part of the great valley. That the coal is of vegetable origin, no one who has read much on the subject or personally examined the coal beds, will deny. Time was when it was considered a peculiar mineral product, formed in the same manner and at the same time, with the rocks that surround it. The product of its chemical analysis, being altogether vegetable, and the artificial formation of coal from wood by Sir James Hall, have silenced all doubts on the

subject. The only mystery now is, how such vast quantities of vegetable matter could be accumulated and grown on the spot where they were buried. That they grew in general on the surface now occupied by the coal appears certain from the perfect state in which the most delicate leaves and stems are preserved. Had they been transported by currents of water and especially from any distance, it is hardly possible that they should not have received more damage. The climate at that period must have been more humid than at present, as many of the plants are of those families which now grow only in tropical climates, and as the laws of nature never change, this may be deemed a correct inference.—*Silliman's Journal*.

**Banking Capital of Massachusetts.**

At the late session of the Legislature of Massachusetts, nine new banks were chartered, three of which are located in Boston, with capitals amounting to \$1,400,000, the other six are small ones, with an aggregate capital of \$600,000. This adds two millions to the banking capital of the State.—The annexed statement gives the amount of the banking capital employed in Massachusetts:

The bank capital of Massachusetts, paid in, as per last annual report, was, in October, 1849.....	\$34,630,011
Since which time the following additions have been made—	
Boston, Suffolk co. Cochituate bank..	150,000
“ “ Shoe and Leather Dealers' .....	2,505
Haverhill, Essex county, Haverhill bank .....	300
Haverhill, Essex county, Union bank .....	100,000
Lynn, Essex county, Lighthouse bank .....	9,250
Lawrence, Essex county, Bay State Bank .....	58,100
Fitchburg, Worcester county, Rollstone bank .....	100,000
Milford, Worcester county, Milford Bank .....	100,000
Greenfield, Franklin county, Franklin County Bank .....	40,884
Springfield, Hampden county, Western Bank .....	43,950

Actual bank capital of Massachusetts April, 1850..... \$35,235,000  
To which will be added the following during the year 1850—

**NEW BANKS CHARTERED, 1850.**

Bank of Commerce, Boston.....	\$750,000
Bank of North America, Boston.....	500,000
Haymarket Square Bank, Boston.....	150,000
Rockport Bank, Rockport, Essex county .....	100,000
Prescott Bank, Lowell, Middlesex county .....	100,000
Abingdon Bank, Abingdon, Plymouth county .....	100,000
Tradesmen's Bank, Chelsea, Suffolk county .....	100,000
Mariners' Bank, Danvers, Essex county .....	100,000
John Hancock Bank, Springfield, Hampden county...	100,000
Total .....	\$2,000,000

Total..... \$37,235,000  
This shows an increase in the banking capital of the State, within a period of less than twelve months, of \$2,600,000.

**Georgia Bituminous Coal.**

We are informed that an inexhaustible bed of coal exists in Walker county, just beyond the tunnel and very near the railroad.—*Augusta Constitutionalist*.

The coal bed spoken of in the above paragraph is within a few miles of this place and is very rich. Another bed of coal has recently been discovered in our county, some eight or ten miles west of Ringgold. The coal taken from this last mentioned bed has been pronounced by competent judges

to be of the first quality. We have examined this coal, and have seen it tested, and are satisfied that it is as good as any of the Northern article. These beds are said to be inexhaustible. We have not ascertained who are the owners of this valuable property.—*Ringgold Republican*.

**New York Custom House.****Imports for May.**

	1850.	1849.	1848.
Dutiable .....	7,492,958	5,779,628	5,087,279
Free .....	808,216	887,180	1,283,754
Specie, etc .....	2,883,623	1,137,932	133,922
Total .....	\$11,184,797	7,804,740	6,504,955
Withdrawn from warehouse....	742,914		
Total .....	\$11,927,711		

**Exports for May.**

	1850.	1849.	1848.
Domestic merch'e.....	3,610,971	3,020,861	1,900,970
Foreign free .....	36,401	63,499	3,215
Foreign dutiable!..	310,231	488,492	207,322
Specie, etc .....	741,735	373,916	2,449,253
Total .....	\$4,699,344	3,946,769	4,560,760

The amount of revenue collected has been as follows:

	1850.	1849.	1848.
May .....	2,319,869	1,461,817	1,304,607
Total from Jan'y. 11, 575,728	8,996,058	9,237,631	

The imports in May were over four millions larger than in May last year, of which increase, however, over two and a half millions was in specie and bullion. The exports of domestic produce show an increase of six hundred thousand dollars, notwithstanding the holding back of cotton. They are nearly twice as much as in May, 1848. The fiscal year will close on the 30th of the present month, and the following table of the movements of the eleven months indicate very nearly what the result of the year will be:

**Imports July to June.**

	Dutiable.	Free.	Specie.	Total.
1850. \$89,130,420	7,376,027	9,267,433	105,773,880	
1849. 73,526,047	7,684,147	2,685,637	83,395,831	
1848. 77,594,047	7,657,938	1,103,874	86,355,859	

**Exports July to June.**

	Domestic.	Foreign.	Specie.	Total.
1850. \$29,256,469	4,939,461	5,004,669	39,200,599	
1849. 29,908,679	3,169,023	4,033,462	37,111,164	
1848. 31,403,000	2,534,367	10,056,879	43,994,246	

**Prevention of Explosions in Steam Engines.**

In the Journal of the Franklin Institute, for February, there is a suggestion by Mr. A. C. Jones, C. E., for preventing explosions in steam boilers. Having had long experience with the engines of the Mississippi boats, the writer is convinced that the majority of accidents happen through gross neglect or ignorance; he, therefore, repudiates all nostrums, such as fusible alloys, floats, balance-valves, &c., and merely lays down a few rules to be carefully followed, which, during 25 years' practice, have prevented any accident to the engines under his charge. He advises—1. To carry the water as high as the boiler will allow, without working over into the cylinder.—2. Never increase the pressure of steam to overcome the loss of power by leaks in the joints, disarrangement of the valve gear, etc.—3. If, by any unforeseen cause, the water gets too low in the boiler, avoid pumping in water, or raising the safety valve suddenly, or by any other means disturbing the surface of the water, kept smooth by pressure; but damp the fire at once, and allow the boilers to cool down below their working temperature; if time is an object, now throw in a very small quantity of water, and note its effect on the safety valve; if sufficient time has elapsed, the lever will get heavier; the pump may then be set at work, and a slow fire started, limiting the supply of water so as not to cool the boiler too soon. It is well known, by an experiment with an iron ladle heated to redness, by throwing in water, it is not converted into steam until

the iron has cooled down to 212°, when it instantly flashes into steam. If a boiler is in this condition, and sufficient water is suddenly thrown in, an explosion is inevitable.

#### AMERICAN RAILROAD JOURNAL.

Saturday, June 8, 1850.

The agency of man in production consists simply in supplying motion to matter. The farmer prepares the ground for seed by moving it, or by adding to it stimulating manures. He casts the seed into the soil, and aids the growth of the plant by moving the earth by which it is surrounded. Harvesting is the removal of the ripened grain to a place of shelter. Man's agency is similar in kind till the grain is prepared for food. The best he can do in the various stages of its growth, is to place it in a position and under circumstances where natural agents shall do their appropriate work.

The same is true of manufacturing. Take cotton for instance. The manufacturer communicates motion to the raw material, which after going through various processes, or in other words after it has been subjected to the action of various natural laws, it comes out in the shape of cloth, rude or perfect, just in proportion as the action of these natural laws have been allowed to exert full or only a partial influence. Man, in all, is but the servant of nature, and his reward is just in proportion to the faithfulness of his services. Our progress as a race, in the physical sciences, is exactly measured by the ease with which we communicate motion to matter; or, in other words, by the extent to which we make use of the forces in nature in our employments and pursuits. In the infancy of the race the power that man used resided in his own muscles and those of beasts of burden. As he gains in experience, he calls to his aid the forces which he finds in the wind and the water fall. Each step in his progress is marked by the discovery and application of some new force which he subjects to his own good. Each successive generation goes on in an accelerated ratio, as each possesses the accumulated experience of all preceding.

The progress of the present, measured by the above standard has vastly exceeded all former epochs in our history, in the discoveries and application of the laws of steam and electricity; while with the aid of these two mighty levers we are undoubtedly on the eve of more brilliant discoveries, and a more rapid progress than has ever yet rewarded the toil and industry of the race.

One of the most striking evidences of our growth from childhood to man's estate, is to be found in the different light with which the operations of nature are now viewed, compared with the ideas of a primitive state of society. Mankind then regarded natural laws as hostile, and their manifestations sent to punish and intimidate him. The heaving of volcanic mountains were caused by the throes of imprisoned giants. The lightning was the angry expression of an offended Deity. Man was the sport of the elements, and was filled with terror at any unusual manifestation of natural laws. How changed is he from this infantile state. Instead of being pursued by them, he has turned upon the chase, has seized hold upon the elements, and instead of being any longer their slave he has subjected them to his bondage. The principle in heat that rent the mountain, now carries him with the speed of the wind wherever he will. The lightning the most awful of divine manifestations, has become the most docile and obedient servant, daily report-

ing to him the aggregate actions of mankind, and leading him into the very acme of natural mysteries. Viewed in this light, how vast the progress of mankind; and how easy to trace the race to its earliest infancy.

We can yet have but a faint idea of the influence of "motion applied to water" in the operations of railroads in the transportation of merchandise and produce for the interior portions of a country to navigable waters. Under the old system of wagoning, the value of produce depended entirely upon the cost of carriage, and beyond a certain extent it was worthless as an article of merchandise. In many parts of the west, with all their navigable waters, this is literally true. The cost of transportation is greater than the value of the article after it reaches a market. The most fertile lands are consequently worthless, or nearly so. A railroad opens every market in the world to every man whose door it passes, and gives him access to them at all times. No matter what his surplus, whether hay, wheat, sugar, iron, cattle or cloth, all can be taken up and cheaply and safely carried to their respective consumers; and as our means of buying are limited by our ability to sell, the producer has, as additional means, all that is saved over the old way of forwarding to a market. The railroad puts all parts of the country on nearly the same footing—gives to all a ready market, and by the freedom which it allows to travelling, gives to every part of it a great equality in respect to local advantages. A man who lives on the line of a railroad is in the world wherever he may be situated. The railroad obviates the evil of great centralisation, while it allows the utmost freedom of intercourse. A man may spend his days in a crowded city and his nights in a secluded forest.

Such are some of the advantages of railroads. In a mere pecuniary point of view they are the most potent agents in the production of wealth ever devised. Morally they are equally potent. They supply our material wants, which is a necessary condition of moral growth. They disarm the hostility of one part of a country to another by promoting an acquaintance, and diffusing a similarity of ideas. They stimulate to the utmost moral and intellectual progress, as they render the aggregate experience of the whole community, to a certain extent, the experience of each individual.

#### Kentucky.

This State thus far has done but little in the way of railroads, and might perhaps continued to have slept on some time longer, but for the "noise and confusion" that her sister States are making all around her. However, she seems determined to make up for lost time, and is now the busiest of the busy in the work of preparation, in raising and voting money, in forming companies, in surveying lines, etc.

Some of the most important lines in the country must run through Kentucky. The Mobile and Ohio must pass through its western border. The Nashville and Chattanooga will soon be extended to Louisville. The Maysville and Lexington, in connection with the Lexington and Louisville, will, by cutting off the great bend of the Ohio, be an important line for travel going west, and will ultimately be a link of a line of railroad from Louisville to Baltimore. It may be that the idea of the Charleston and Cincinnati railroad is to be realised by the continuation of the East Tennessee and Georgia railroad. Lexington will soon become the focus of a large number of roads, and must soon

become a much more important place than she is at present. There seems no reason to doubt the early construction of the Maysville and Lexington and the Covington and Lexington on the north, and that a road will also be immediately constructed, extending to Danville in the south; which will gradually work its way to the southern part of the State, if not connect itself with the roads of East Tennessee and Virginia. The people on the proposed lines for a road from Nashville to Louisville are actually engaged in laying their respective lines before the public, and are taking the necessary steps preliminary to commencing work. A railroad is also projected from Nashville to Henderson, Kentucky, opposite Evansville, Ia., for connecting with the great Indiana canal, which is soon to be completed to the latter point.

The above are some of the leading railroad projects in Kentucky. There are others of less importance now under consideration. There is a great deal of accumulated wealth in this State.—In natural resources she is hardly inferior to any State in the Union, and there is no reason why she should not commence and construct those avenues of communication so necessary to her great interests, and which all parts of the country are beginning to regard as among the indispensable luxuries and conveniences of life.

#### Steamboat Paddles.

In this age of locomotion, when the wits of men are taxed to the utmost to secure the greatest speed of steamers and locomotives, it is indeed marvellous that so faulty a construction and arrangement of paddles continues to prevail, and that an improvement upon the modes now in use attracts so little attention. In constructing the Atlantic and Pacific, for instance, Mr. Collins spared no pains nor expense to secure a perfect model for the hull, and the most approved machinery, but adopted apparently without inquiry, the form of the paddle wheel in use. We believe that with a proper arrangement of the paddle his steamers would cross the Atlantic in much less time than is now occupied in the passage, and that they will not realize his expectations till these improvements are made.

It can be very easily demonstrated that to obtain the greatest amount of power, only one paddle on each wheel shall be submerged at the same time. This will be readily understood from the fact that by the addition of a certain number of paddles, the whole may be converted into a solid cylinder. This cylinder displaces all the water within its reach, and leaves it none to act upon. The less the amt. of water displaced, the greater is the action of floats or paddles. Theoretically, therefore, they should be made as thin as possible, with the requisite strength, and should be so far apart as to displace the least possible amount of water, that is only one on each wheel should be in the water at once.

This is one objection to the use of a great number of paddles. There are others of an almost equally serious character. It is well understood that after the float has passed its vertical position and begins to rise, its movement retards, instead of propelling the vessel, on account of lifting the water, as it is termed. The rapid motion of the wheel does not allow time for the water to escape from the floats, but an immense volume of it is lifted up from the surface, and a portion of it is carried entirely over the wheels. Each float takes its load. Where there are ten floats submerged, the resistance from this source is ten times greater than



where only one float occupies the space of the ten.

The Atlantic had, we believe, ten floats on each wheel submerged when she left this port. Her loss of speed from this cause alone can be very easily determined by ascertaining how much more water ten floats displaced and raised than one would have done. This may be made the subject of a mathematical calculation, the results of which cannot be disputed. We will admit there may be reason for not following implicitly the deduction from abstract premises, but we are satisfied that these abstract conditions may be complied with to a much greater extent than we find them to be in practice.

#### Pacific Railroad--Mr. Whitney's "Plan."

We had supposed that the decided hostility which Congress has recently expressed towards Mr. Whitney's Pacific railroad scheme, had given it its final quietus. Not so. We find that Mr. Whitney, nothing daunted by his defeat, is as active as ever; and that he has not yet even exhausted the whole dupability of the country. He has succeeded in imposing upon the credulity of a few weak members of Congress who compose the majority of the committee on canals and roads, of which Hon. J. D. Robinson, of Indiana, is chairman, who in their official capacity have revamped the old story, and have again presented it to the world in an entirely new dress. The great farce however is about played out, and it is only prolonged by the energy and activity of its author. Congress has a decided antipathy for it, and it is not supported by a single name in the country, which should be authority in such matters. If Mr. Whitney chooses to amuse himself with it we have no objections. With such harmless amusements we do not wish to interfere.

#### The Railroad Interest.

There has been this year a decided improvement in the earnings of railroad companies over the last, and as a necessary consequence, an advance in price in this species of property. In all the roads running from this city the advance has been very great, and is based upon the large and constantly increasing receipts. From the abundance of capital in this city seeking investment, any real improvement in railroad property is sure to be seen in the increased price it commands.

The earnings of the Massachusetts roads show a decided increase over last year, notwithstanding the general depression of business in that State. The prices of stocks gain but slowly, owing to the scarcity of money there. Massachusetts has over invested, and has hardly ready means enough to carry on her ordinary business transactions. Unfortunately all her leading interests are exceedingly depressed, and at the present time she can accomplish little to extricate herself from her embarrassments. An improvement however is constantly going on, and a favorable "turn of times" would soon restore her former prosperity.

All other parts of the country also show a great improvement. Railroads are beginning to recover the position which they once possessed in public estimation, and to be regarded as useful in themselves, and as offering a safe and profitable investment for money. The depression which this kind of property has suffered, has had the good effect to correct much unwise and unprovident management, and will be productive of great good in the end.

The increased confidence in railroads is very favorable to those coming into the market for money

to complete new works, and will enable such to negotiate their securities at a better rate than could be done a year since.

#### Missouri.

##### The Pacific Railway.

We are informed that the surveys of the Pacific railway commenced on the 24th of May, taking the city Directrix as the base of reference.

The Chief Engineer, we learn, is now on his way to Jefferson city, making his first general reconnaissance.

We are pleased to see this good work so promptly begun. We trust that our citizens will consider this as an auspicious time to give to the company their aid, and that those who have subscribed will go forward promptly and pay up the very small instalment that has been called for.

This great work will be like another Mississippi flowing into St. Louis and through our State. It will give new life and activity to all branches of business, and open a new career of prosperity to the vast interior.

We trust, also, that Congress, seeing the earnestness with which this enterprise is to be carried out by the people of this city and State, will at once grant the right of way as well as a liberal quantity of the public lands.—*St. Louis Int.*

#### Mineral and Agricultural Lands.

From the Lake Superior Journal, published at the Sault Ste Marie, we learn that up to December last, there had been sold in the Lake Superior district, and 14,702 acres of mineral land and 17,606 acres of agricultural land.

Throughout the Lake Superior region are large sections of good farming land, and capable of sustaining as large a population as that of New Hampshire, Vermont, or Maine. The mining interest has heretofore diverted the attention of the emigrant to this region, from the agricultural capacity and advantages of the country.

#### Albany and Rutland Railroad.

The friends of the work are making rapid progress in procuring the necessary means for its construction, and there can be no doubt of their success in this, the most important part of railroad making. The above is a work of much importance, both in its local and general influences, running through a very fine section of the country, and connecting the Vermont railroad and Albany, and the railroad system of this State.

The proposed road is to run through the towns of Danby, Dorset, and Bennington, Vermont; and thence by Cahoes to Albany. The whole length of line is 86 miles, made up as follows: from Rutland to Bennington 51 miles, and from Bennington to Albany 35 miles. The route is reported to be favorable, and we may count that Albany and Rutland will soon be added to the list of finished railroads in this State and Vermont.

#### Pennsylvania.

**Reading Railroad.**—The receipts of the Reading railroad for May have been very large, and should the earnings continue as favorable the company will be enabled to declare a good dividend on the old stock. The receipts for May have been as follows:

Passengers.....\$14,862 11  
Freight on merchandise..... 8,949 22  
Freight on coal.....170,809 03  
Mail..... 783 39  
Miscellaneous..... 490 81

\$195,894 56

The amount of coal shipped is 111,899 tons.

#### Tennessee.

**Another "Port of Entry."**—A few days ago, the steamer "Cassandria" with a load of salt, run up the "Little Tennessee river," to Morganton, about 70 miles above the mouth, and brought out a load of bacon, etc. The people were delighted with this pioneer trip on their beautiful little river, and declared that they would build a light draught boat to do their trade. The great outlet for produce afforded by the railroad to Chattanooga, is waking up the people on every stream tributary to the Tennessee river, and it is not unreasonable to suppose that in a few years steamboats will be successfully navigating the Elk, Little Tennessee, Clinch, Chucky, etc., and the vast productions of the countries contiguous to those rivers, will find their way to market over the Georgia road.—*Chattanooga Gazette.*

#### Georgia Railroad.

The operations of this road for the past year will be seen from the following abstract from the report submitted by the superintendent of transportation, F. C. Arms, Esq.

TABLE—Exhibiting the comparative receipts and business of the road for the years ending March 31st, 1849 and 1850.

	Year ending Mar. 31, '49.	Year ending Mar. 31, '50.	Increase.
<b>Receipts.</b>			
Passengers.....	\$166,484 04	\$189,650 45	\$23,166 41
Freight.....	376,957 07	398,006 92	21,049 85
U. S. Mail & rents.....	38,573 48	39,149 65	576 17
<b>Totals.....</b>	<b>\$582,014 59</b>	<b>\$626,807 02</b>	<b>\$44,792 43</b>
<b>Expenses.</b>			
Conducting transportation.....	\$49,895 90	\$59,155 00	\$10,259 10
Motive power.....	65,531 14	81,111 89	15,580 75
Maintenance of way.....	66,054 99	70,717 82	3,662 83
Maintenance of cars.....	14,300 85	17,297 26	2,996 41
<b>Total.....</b>	<b>\$195,782 88</b>	<b>\$228,281 97</b>	<b>\$32,499 09</b>
<b>Net profits.....</b>	<b>\$386,231 71</b>	<b>\$398,525 05</b>	<b>\$12,292 34</b>

The increased income, Mr. Arms remarks, has been, from passengers \$23,166 41; from freight \$21,049 85, and from mail transportation and rents \$576 17. Sixty-five thousand four hundred and thirty-eight passengers have been carried in the cars of the regular trains, making an average of 179 per day, both ways—against 106 for each of the two preceding years. The average number of through passengers per day, between Charleston and Montgomery, has been 17 for the last year, and 16 for the previous year. This average for through passengers between Charleston and all points in Alabama (including Montgomery) has been for the last two years 21 and 18—showing an increase 17 per cent.

The number of local passengers (exclusive of emigrants and those by extra trips) has increased from 31,517, (86 per day) to 57,061 (156 per day)—and the receipts thereby from \$104,653 to 132,696. A portion of this increased passenger business is unquestionably attributable to the low rates of fare, which were reduced to three cents per mile on the 15th of June, 1849.

A very satisfactory increase will also be noticed in the up freights, viz: from \$148,981 to 210,757, (35 per cent.) The falling off in the down freights has been caused by the short crop of cotton, and entire failure of the wheat crop—the diminution of receipts from these causes being 23,692 bales of cotton, 13,361 barrels of flour, and 100,431 bushels of grain.

**Another Lake Steamer.**

We learn that the Michigan Central railroad company have added another new steamer, called the *Ocean*, to their line, which now consists of that boat, the *Mayflower* and the *Atlantic*. The hull of the *Ocean* was built at Newport, on the Detroit river, and the decoration and furnishing were completed at Detroit. The cost of the boat is about \$120,000. Her length on deck is 265 feet; breadth of beam 33½ feet; depth of hold 13 feet. She has 80 state rooms, and accommodations for 400 cabin and about the same number of steerage passengers. She is propelled by a powerful steam engine, from the works of Secor & Co., New York, having the following dimensions: diameter of cylinder 61 in., length of stroke 11 feet, diameter of wheels 32 feet, length of bucket 10½ feet; two large boilers 11 feet wide; length of boilers 30 feet.

**Wabash and Erie Canal.**

Yesterday we saw letters from Mr. Charles Butler, president of the board of trustees, at New York, and Mr. Thos. Downing, the lately appointed trustee, residing at Terre Haute, to a gentleman in this city, which contained some items of interest relative to the Wabash and Erie canal. It was stated in these letters that the plan for completing the unfinished portion of this canal would be determined upon at the next meeting of the board, which will be in June, and the work would be immediately commenced and industriously prosecuted to its completion. The canal is now in operation to Point Commerce, while contracts are now in existence and the work progressing, to complete the improvement to Maysville. From Evansville, the canal has been dug twenty-one miles. From this point to Maysville is about thirty-five miles, thus leaving that distance to be put under contract at the next sitting of the board.—*Evansville Jour.*

**New York and Erie Road.**

The earnings of the Erie railroad in May have somewhat exceeded the expectations of the managers, and fully sustained the promise of the early part of the month. It must be remembered that at least twenty days of this month have been very rainy, and that this continuation of wet weather has made the common roads in the interior almost impassible. Under these circumstances, when travelling to the road is difficult, and moving freight still more so, the result of the month's traffic is highly gratifying. The receipts were as follows:

From passengers and mail.....	\$74,262 01
From freight.....	73,964 54
Total.....	\$148,226 55
The receipts for May, 1849, were.....	66,066 67
Increase.....	\$82,159 88

The aggregate receipts of the five months of this year have been as annexed:

EARNINGS OF ERIE RAILROAD, 1850.			
	Pass. & mail.	Freight.	Total.
January.....	46,752	66,223	112,974
February.....	46,471	55,741	102,212
March.....	55,349	75,229	130,578
April.....	69,229	72,756	141,985
May.....	74,262	73,964	148,226
Aggregate receipts.....	\$635,925		

**Another Mammoth Cave.**

A "hole in the ground" has been discovered and explored, near Madison, the Capital of Wisconsin, which bids fair to rival the great subterranean excavation in Kentucky.

The party who explored the Wisconsin cave

were five days "under ground," coming out several miles distant from the place where they "went in." The vastness of the cavern, at various places, is described as *impressive*, and is supposed to extend under most of the counties of Dane and Iowa. The party passed over and among large masses and blocks, which, on examination, proved to be *lead ore of fine quality*, spreading over a surface of *three miles*—not less than 200,000 tons in sight!—They found fine copper ore, and *eleven pounds of native silver*. Crystals, stalactites, incrustations, etc., abundant, and water falls and a lake, which was explored in a canoe, and found to be 37 feet deep. Such is the statement of the subterranean explorers, published in the *Madison Argus*, by Howell Lumley, Esq., the leader of the party.

**New Scientific Discovery.**

The Paris correspondent of the London Times says:

"The scientific world has been in a state of commotion during the whole week, in consequence of the publication of the discovery of the long-sought for secret of the fusion and crystallization of carbon. The Sorbonne has been crowded for the last few days to behold the result of this discovery, in the shape of a tolerably-sized diamond of great lustre, which M. Desprez, the happy discoverer, submits to the examination of every chemist or *savant* who chooses to visit him. He declares that, so long ago as last autumn, he had succeeded in producing the diamond, but in such minute particles as to be visible only through the microscope, and, fearful of raising irony and suspicion, he had kept the secret, until, by dint of repeated experiments and great labor, he had completed the one he now offers to public view. Four solar lens of immense power, aided by the tremendous galvanic pile of the Sorbonne, have been the means of producing the result now before us. M. Desprez holds himself ready to display the experiment whenever it may be required. The diamond produced is of the quality known in the east as the black diamond, one single specimen of which was sold by Prince Rostoff to the late Duke of York for the enormous sum of twelve thousand pounds!"

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AGENTS for the Balt. City Rolling Mill, from which establishment they are prepared to furnish Ellicott's round, square, and flat bar iron, puddled and charcoal boiler plates and billet iron—also agents for the sale of the Laurel and Maryland (Balt.) charcoal forge pig irons, Balt. hard iron for chilling wheels, anti-Eaton nails, Catoctin foundry iron, boiler blooms from the Caledonian works, Wm. Jessop & Son's cast steel, Coleman's blister steel and nail rods, hoop, band, sheet, oval and common English iron.

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THESE Works are in full operation in Manufacturing to order, Locomotive Steam Engines & Tenders, of the best principle and construction of material, using wrought iron heavy frames with pedestals welded thereto, and all parts of the engine made of the best wrought iron, except cylinders, pumps and boxes—obtaining greater durability, and carrying less weight over the road, than engines constructed of cast iron.

Wrought Iron Tires made any required size, and Tire Bars bent and welded with dispatch. Chilled Wheels for Cars, Trucks and Tenders, made from the toughest iron.

Driving and Tender and Car Wheels fitted to Axles with Brass Boxes and Springs, and Railroad Machinery generally. Manufactured and for sale by April 11, 1849. E. S. NORRIS.

**Theodolite for Sale.**

A FIRST RATE 5 INCH THEODOLITE for sale at a bargain. Enquire at the Railroad Journal Office.

**Election of an Engineer.**

At a Meeting of the Board of Directors of the Virginia Central Railroad Co. at Charlottesville on the 4th day of June, 1850,

Resolved, That the election of a Chief Engineer in the place of Wm. A. Kuper, whose resignation has been accepted, is postponed to take place in Richmond on Tuesday the 18th of June instant.

A copy from the minutes.

JOHN GARRET, Secretary.

**Lovegrove's Patent Cast Iron Water and Gas Pipes.**

THE Subscriber, the Inventor and Patentee of the Centrifugal mode of giving form to metallic substances while in a molten state, is preparing to make Cast Iron Water and Gas Pipes, of any dimensions, at prices much lower than they can be made in the old manner, and the pipes warranted to stand a pressure of three hundred pounds to the square inch, and to be soft enough to drill. Steam Engines and all kinds of machinery. Cast Iron Doors and Frames, and Mill Castings of every description, made to order.

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CONTAINING Correct Tables, showing the time for starting of trains from all stations, distances, fares, etc., on all the Railway lines in the U. States; also many of the principal Steamboat and Stage routes—accompanied by a complete RAILWAY MAP. Price, single copies 12½ cts., or \$1 per annum. Published on the first of every month, corrected from returns furnished by the Railway Superintendents throughout the Union.

This book has been compiled somewhat on the plan of Bradshaw's Guide, with such improvements in size, form and arrangement as have seemed desirable; and the publisher confidently hopes it will not be found liable to the objections of incompleteness and incorrectness, which have been made, and justly too, against various other similar works heretofore issued.

The subscriber having had the management of the NEW YORK PATHFINDER almost from its commencement, has enjoyed superior facilities in obtaining information relating to the thoroughfares of travel, and is therefore well qualified to prosecute with success the arduous undertaking of furnishing a complete and correct national guide book.

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HORACE H. DAY,

Warehouse 23 Courtlandt street. New York, May 21, 1849.

**To Railroad Companies.**

FOR SALE—A Second-hand Locomotive Engine and Tender, of about 10 tons weight, in good order, and warranted to perform well. Any company wanting a cheap engine for a passenger or light burden train, will rarely meet with an opportunity so favorable as the present. The engine and tender are in perfect running order, and will be tested to the satisfaction of any one wishing to purchase. Price \$1,500.

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J. B. MOORHEAD, Frazer P.O., Chester county, Pa.

P.S.—The Engine can be seen by calling on H. Osmond & Co., Car-builders, Broad st., Philadelphia. September 6, 1849.

**Spikes, Spikes, Spikes.**

A NY person wishing a simple and effective Spike Machine, or a number of them, may be supplied by addressing J. W. FLACK, Troy, N. Y. March 6, 1850.



**Great American Engineering**

**AND MECHANICAL WORK**, just published in a medium folio, 75 cts. to Subscribers, One Dollar to non-subscribers.

Part V of "Specimens of the Stone, Iron and Timber Bridges, Viaducts, Tunnels, &c. &c. of the United States Railroads." By George Duggan, Architect and Civil Engineer.

The present part contains beautifully executed plans, elevations and sections of the Timber Viaduct across the Canewacta Creek at Lanesboro', Pa., and the Details of the Starucca, (stone) Viaduct near Lanesboro', Pa., on the line of the N. Y. & Erie R. R.

N.B.—This work is published by subscription of the most eminent in the engineering profession of the U. States, and will be completed in 12 parts, at 75 cents each to those who remit their names and subscriptions before the 1st June next—when the first 6 parts or one half of the work will be published—after which the price will be raised to \$1 per part.

To those making a present remittance of \$5, and the remainder \$4, when they have been supplied with the first six parts, the work will be forwarded regularly as published. Parties remitting \$9 shall receive it monthly post-free in any part of the United States.

"It is a work that was a great desideratum, and must prove of great benefit to the engineering profession generally, and especially to the tyro in practical engineering and mechanical knowledge; in truth it strikes us, that it would require years of labor and patient toil on the part of a young engineer to prepare the drawings, and collect the information that will be embodied in this work, and can now be secured for the trifling sum of \$9"—[Scientific Amer. March 16, 1850.]

In connection with this subject (Iron Railroad Structures) we take occasion to call attention again to Mr. Duggan's valuable and expensive publication, exhibiting drawings, with full descriptions of the various stone, iron and wooden bridges, viaducts, tunnels, culverts, etc., of all the Railroads in the United States. Mr. Duggan is an accomplished Architect and Civil Engineer, who came from Ireland to this country to exercise his profession; but finding railroad construction here, in many respects, different from that he had been accustomed to in Europe, he applied himself to the study of our system; and the fruits of his researches and investigations embodied in this work, are well calculated to meet the exigencies of engineers, and to assist draughtsmen, bridge builders, mechanics and students.—[N. Y. Journal of Commerce, Feb. 14, 1850.]

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**CERTIFICATES.**

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Gentlemen: We have given your machine oil a thorough trial, and find that it possesses all the qualities that we could wish as it works better than any sperm oil we have ever used. Our shafts that required oiling four times a day with the best sperm oil that we could get, work equally as well by the application of your oil twice a day, and your oil stands cold weather much better than any oil we have ever used. Our engineer having had years' experience in running and making engines, we put great confidence in his judgment, and he gives it as his opinion that your oil is fully equal to if not better than any he ever used; and we shall soon give you an order for more, as we do not want any other kind of oil as long as we can get yours.

Very respectfully yours,

**JACKSON, CLARK & CO.**

Bridgeport, Nov. 7th, 1849.

Messrs. Robbins, Langdon & Co.,

Gentlemen: After about three months' trial of your oil, I have come to the conclusion to use it entirely on the engines on the New York and New Haven and the New Haven and Northampton Railroads for the following reasons:

1. It wears quite as long as sperm oil.
2. So far as I have tried it, it keeps the Journals equally cool as sperm oil.
3. I have no complaint from our men about cleaning the engines, and presume it is equally as easy to clean an engine by using your oil as it is in using sperm oil.
4. I can see no reason why it is not equal to the best of sperm oil for lubricating machinery.
5. There is in my opinion a very great saving to all parties in using your oil for lubricating machinery.
6. I believe it will stand cold weather better than any sperm oil. Very respectfully yours,

**R. B. MASON, Supt. N.Y. & N.H. Railway.**

Steamer Bay State, Oct. 22d, 1849.

Messrs. Robbins, Langdon & Co.,

Gentlemen: In answer to your request for my testimony as to the machinery oil manufactured by you, I will say that I have used it for some time past on the Bay State, and am perfectly satisfied that your statement to me of its good qualities, is correct. As far as its lasting properties go, it wears equally long as sperm oil, runs perfectly free, and has no appearance of thickening. As seeing is better than hearing, I would recommend you to send your friends on board your boat, and they can then, by ocular demonstration, judge for themselves. Yours respectfully, **JOHN GRAY,**  
Engineer of Steamer Bay State, Pier 3, N.R.

Steamboat Knickerbocker, Sept. 22, 1849.

Gentlemen: Mr. Hall, Agent of the Norwich and New London Steamboat Co., placed in my hands some of your machinery oil, which he desired me to use on the engine and other machinery, which I have done, and was so much pleased with the working, that I recommended the owners to give you their orders.

I have been using the article since August 19, and with perfect satisfaction, and I am well satisfied that your oil is as good as the best of sperm for lubricating machinery. I am yours very respectfully,

**SAMUEL CARTER,**

Engineer of Steamboat Knickerbocker, Pier 18, N.R.  
To Messrs. Robbins, Langdon & Co.,  
Oil Merchants, 133 Water street, New York.

Steamboat Worcester, N. York, Oct. 15, 1849.

Messrs. Robbins, Langdon & Co.,

Gentlemen: I beg to acknowledge the receipt of your letter requesting my opinion as to your oil for machinery, which I had not time to reply to previous to my return to Norwich. I have been using your oil on the engine and machinery of the Worcester with perfect success, and have much pleasure in testifying as to its good qualities. In my opinion, the journals keep cooler with your oil than with sperm, and it wears equally well. Should you at any time wish to refer to me as to your oil, I beg you will do so without hesitation. Yours respectfully, **JAS. CROOKER,**  
Engineer Steamboat Worcester, Pier 18, N. R.

New York, August 3d, 1849.

Messrs. Robbins, Langdon & Co.,

Gentlemen: I received your letter in regard to your oil for machinery, which I handed to your engineer, and have much pleasure in sending you an extract from his letter to me on the subject: "I have applied the oil sent me upon our hot journals and cylinders, and find that they keep cooler with it than with sperm oil. I cannot find any fault with the oil, although I have watched it carefully. I have also tried it against an equal quantity of sperm oil, and find it wears quite as well." You are quite at liberty to show this extract to your friends, and shall be happy to give any further certificate you may require. **WM. RIDER,**  
Treasurer Union India-rubber Co., 19 Nassau st. N.Y.

New York, March 22d, 1850.

Messrs. Robbins, Langdon & Co.,

Gentlemen: I have been using your machinery oil on the engine and other machinery of the Steamer Southerner running from this to Charleston, and find it equal to sperm oil. I shall continue the use of the same, and you are at liberty to refer to me at any time.

Yours respectfully, **DAVID N. MAXON,**  
Chief Engineer Steamer Southerner.

Steamboat C. Vanderbilt, N. York, Oct. 11, 1849.

Messrs. Robbins, Langdon & Co.,

Gentlemen: In reply to your inquiries respecting the qualities of your machinery oil, I am happy to inform you that I have been using the article sent me for some time past, not only on the engine but on all other machinery connected with it: and from a careful and close examination, I am well satisfied that your oil is as good as the best of sperm oil for lubricating machinery. I have recommended Mr. Lockwood the agent of the company, to give you their orders.

Yours respectfully, **JAMES BAKER,**  
Engineer Steamboat C. Vanderbilt, Pier 3, N.R.

Brooklyn, August 29, 1849.

Messrs. Robbins, Langdon & Co.,

Gentlemen: Your letter of the 29th was received, and I am happy to inform you that I have used your machinery oil throughout my establishment, and I am still of the opinion that it is as good as the best of sperm oil for lubricating machinery. I should be pleased at any time to have your friends witness the working, and I am sure, after once doing so, will give you their orders. Please send me another cask by the evening of the 3d, and by so doing you will much oblige,

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**ENGINEERS.**

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Michigan Central Railroad, Marshall, Mich.

**Buckland, George,**  
Troy and Greenbush Railroad.

**Clement, Wm. H.,**  
Little Miami Railroad, Cincinnati, Ohio.

**Cozzens, W. H.,**  
Engineer and Surveyor, St. Louis, Mo.

**Alfred W. Craven,**  
Chief Engineer Croton Aqueduct, New York.

**Davidson, M. O.,**  
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**Fisk, Charles B.,**  
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**Felton, S. M.,**  
Fitchburg Railroad, Boston, Mass.

**Floyd-Jones, Charles,**  
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St. Lawrence & Atlantic Railroad, Montreal, Canada.

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" E. Pratt & Brother, Baltimore.  
John Barstow, Esq., Providence.  
Lewis Bullard, Esq., Boston.  
February 9, 1850. 6m\*

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### Machinery Warehouse.

S. C. HILLS, No. 43 Fulton street, New York, has  
constantly for sale Steam Engines, Boilers, Lathes,  
Chucks, Drills, Planers, Force and Suction Pumps;  
Tenoning, Morticing and Boring Machines, Shingle  
Machines, Bolt and Nut Machines, Belting, Oil, Iron  
and Lead Pipe; Rubber, Percha and Leather Hose,  
&c., &c.

S. C. H.'s arrangements with several machine shops  
are such that he can supply, at very short notice, large  
quantities of machinery.  
November 23, 1849.

### George O. Robertson, BROKER IN SCOTCH AND AMERICAN PIG IRON;

Bar Iron, Lead, Spelter, Tin, Copper, etc.,  
No. 4 Liberty Place, MAIDEN LANE,  
(Near Broadway.)  
NEW YORK

### Manufacture of Patent Wire ROPE AND CABLES,

For Inclined Planes, Suspension Bridges, Standing  
Rigging, Mines, Cranes, Derrick, Tillers, &c., by  
JOHN A. ROEBLING, Civil Engineer,  
TRENTON, N. J.

### Samuel D. Willmott, MERCHANT, AND MANUFACTURER OF CAST STEEL WARRANTED SAWS,

—AND FILES—  
IMPORTER OF THE  
GENUINE WICKESLY GRINDSTONES  
NO. 8 LIBERTY STREET,  
NEW YORK.

**Doremus & Harris,**  
ANALYTICAL & CONSULTING CHEMISTS,  
179 BROADWAY, NEW YORK.  
SCHOOL OF CHEMISTRY.

### IRON.

#### Railroad Iron.

**3,000 TONS C. L. MAKE** 63½ lbs. per yard,  
now landing and to arrive.  
Also contracts made for future delivery of above su-  
perior make English Iron.

300 Tons Banks Best Iron, Round, Square and Flat.  
200 " English Bar " " " "  
10 " 9-16 Square Iron for Railroad Spikes.

For sale in lots to suit purchasers by  
**DAVID W. WETMORE.**  
New York, March 26, 1850. 3m

**SPRING STEEL FOR LOCOMOTIVES, TEN-  
DERS AND CARS.**—The subscriber is engaged  
in manufacturing spring steel from 1½ to 6 inches in  
width, and of any thickness required: large quantities  
are yearly furnished for railroad purposes, and wher-  
ever used its quality has been approved of. The estab-  
lishment being large, can execute orders with great  
promptitude, at reasonable prices, and the quality war-  
ranted. Address **J. F. WINSLOW, Agent,**  
Albany Iron and Nail Works.

#### Railroad Iron.

THE Undersigned, Agents for Manufacturers, are  
prepared to contract to deliver Rails of superior  
quality, and of any size or pattern, to any ports of dis-  
charge in the United States.

**COLLINS, VOSE & CO.,**  
74 South St.

New York, June 1, 1850.

#### Railroad Iron.

1,500 Tons weighing 53 lbs. per lineal yard.

500 " " 57 " "  
500 " " 56 " "  
500 " " 60 & 61 lbs. "

Also 2½x½ flat rails. All the above being of approv-  
ed patterns. For sale by  
**DAVIS, BROOKS, & CO.,**  
68 Broad street.

N.B.—Rails imported on commission, or at a fixed  
price.

#### Iron.

Pig Iron, Anthracite and Charcoal; Boiler and Flue  
Iron, Spring and Blistered Steel, Nail Rods, Best Re-  
fined Bar Iron, Railroad Iron, Car Axles, Nails, Stove  
Castings, Cast Iron Pipes of all sizes, Railway Chairs  
of approved patterns for sale by  
**COLEMAN, KELTON & CAMELL,**  
109 N. Water St., Philadelphia.

**IRONDALE PIG METAL, MANUFACTURED**  
and for sale by the Bloomsburg Railroad Iron Co.  
**LINDLEY FISHER, Treasurer.**  
75 N. Water St., Philadelphia.

#### Railroad Iron.

**2000 Tons,** weighing 58 pounds per lineal yard,  
of the most approved pattern of T rails, in  
store and to arrive, for sale by  
**COLLINS, VOSE & CO.,**  
74 South St.

New York, June 1, 1850.

#### Railroad Iron.

**1675 Tons,** weighing about 61 lbs. per yard, 90  
tons, weighing about 52 lbs. per yard, and  
825 tons, weighing about 53½ lbs. per yard, of the lat-  
est and most approved patterns of T rail, for sale by  
**BOORMAN, JOHNSTON & CO.,**  
119 Greenwich street.

New York, Feb. 25, 1850.

N.B.—B. J. & Co are also prepared to take con-  
tracts for English rails, delivered in any of the Atlan-  
tic ports of the United States.

#### Railroad Iron.

THE UNDERSIGNED, HAVING made arrange-  
ments abroad, are prepared to contract for the deliv-  
ery of Foreign rails, of approved brands upon the  
most favorable terms.

They will also make contracts for American rails,  
made at their Trenton works, from Andover Iron, in  
whole or in part, as may be agreed upon.

They are prepared to furnish Telegraph, Spring and  
Market Wire; Braziers and Wire Rods; Rivets and  
Merchant Bars to order, all made exclusively from An-  
dover Iron. The attention of parties who require iron  
of the very best quality for special purposes, is respect-  
fully invited.  
**COOPER & HEWITT,**  
17 Burling Slip, New York.

February 15, 1850.

### Glendon Refined Iron.

Round Iron, Band Iron, Hoop Iron,  
Square " Flat " Scroll "

Axles, Locomotive Tyres,  
Manufactured at the Glendon Mills, East Boston, for  
sale by **GEORGE GARDNER & CO.,**  
5 Liberty Square, Boston, Mass.  
3m37

Sept. 15, 1849.

**PATENT HAMMERED RAILROAD, SHIP &  
BOAT SPIKES.**—The Albany Iron Works  
have always on hand, of their own manufacture, a  
large assortment of Railroad, Ship and Boat Spikes  
from 2 to 12 inches in length, and of any form of head  
From the excellence of the material always used in  
their manufacture, and their very general use for rail-  
roads and other purposes in this country, the manu-  
facturers have no hesitation in warranting them fully  
equal to the best spikes in market, both as to quality  
and appearance. All orders addressed to the subscrib-  
ers at the works will be promptly executed.

**JOHN F. WINSLOW, Agent.**

Albany Iron and Nail Works, Troy, N. Y.  
The above Spikes may be had at factory prices, of  
Erastus Corning & Co. Albany; Menitt & Co., New  
York; E. Pratt & Br. 1st, F. 5, 7 more Md

### LAP—WELDED WROUGHT IRON TUBES

FOR

#### TUBULAR BOILERS,

FROM ONE AND A QUARTER TO SEVEN  
INCHES IN DIAMETER.

THE ONLY Tubes of the same quality and man-  
ufacture as those so extensively used in England,  
Scotland, France and Germany, for Locomotive, Ma-  
rine and other Steam Engine Boilers.

**THOMAS PROSSER & SON, Patentees,**  
28 Platt street, New York.

#### Railroad Iron.

THE UNDERSIGNED ARE PREPARED TO  
contract for the delivery of English Railroad Iron  
of favorite brands, during the Spring. They also re-  
ceive orders for the importation of Pig, Bar, Sheet, etc.  
Iron.  
**THOMAS B. SANDS & CO.,**  
22 South William street,  
New York.

February 3, 1849.

### Iron Store.

THE Subscribers, having the selling agency of the  
following named Rolling Mills, viz: Norristown,  
Rough and Ready, Kensington, Triadelphia, Potts-  
grove and Thorndale, can supply Railroad Companies,  
Merchants and others, at the wholesale mill prices for  
bars of all sizes, sheets cut to order as large as 58 in.  
diameter; Railroad Iron, domestic and foreign; Loco-  
motive tire welded to given size; Chairs and Spikes;  
Iron for shafting, locomotive and general machinery  
purposes; Cast, Shear, Blister and Spring Steel; Boil-  
er rivets; Copper; Pig iron, etc., etc.

**MORRIS, JONES & CO.,**

Iron Merchants,

Schuylkill 7th and Market Sts., Philadelphia.

August 16, 1849.

ly33

#### Railroad Iron.

THE MOUNT SAVAGE IRON WORKS, AL-  
legany county, Maryland, having recently pass-  
ed into the hands of new proprietors, are now prepar-  
ed, with increased facilities, to execute orders for any  
of the various patterns of Railroad Iron. Communi-  
cations addressed to either of the subscribers will have  
prompt attention. **J. F. WINSLOW, President**

Troy, N. Y.

ERASTUS CORNING, Albany.

WARREN DELANO, Jr., N. Y.

JOHN M. FORBES, Boston.

ENOCH PRATT, Baltimore, Md.

November 6, 1848.

#### Railroad Iron.

THE SUBSCRIBERS ARE PREPARED TO  
take orders for Railroad Iron to be made at their  
Phoenix Iron Works, situated on the Schuylkill Riv-  
er, near this city, and at their Safe Harbor Iron Works,  
situated in Lancaster County, on the Susquehanna  
river; which two establishments are now turning out  
upwards of 1800 tons of finished rails per month.

Companies desirous of contracting will be promptly  
supplied with rails of any required pattern, and of the  
very best quality.

**REEVES, BUCK & CO.**

45 North Water St. Philadelphia.

March 15, 1849.

**Monument Foundry.**

**A. & W. DENMEAD & SON,**  
Corner of North and Monument Sts.,—Baltimore,  
HAVING THEIR

**IRON FOUNDRY AND MACHINE SHOP**

In complete operation, are prepared to execute faithfully and promptly, orders for Locomotive or Stationary Steam Engines, Woolen, Cotton, Flour, Rice, Sugar Grist, or Saw Mills, Slide, Hand or Chuck Lathes, Machinery for cutting all kinds of Gearing, Hydraulic, Tobacco and other Presses, Car and Locomotive patent Ring Wheels, warranted, Bridge and Mill Castings of every description, Gas and Water Pipes of all sizes, warranted, Railroad Wheels with best fagotted axle, furnished and fitted up for use, complete

Being provided with Heavy Lathes for Boring and Turning Screws, Cylinders, etc., we can furnish them of any pitch, length or pattern.

Old Machinery Renewed or Repaired—and Estimates for Work in any part of the United States furnished at short notice.

June 8, 1849.

**Iron Wire.**

**REFINED IRON WIRE OF ALL KINDS,**  
Card, Reed, Cotton-flyer, Annealed, Broom, Buckle, and Spring Wire. Also all kinds of Round, Flat or Oval Wire, best adapted to various machine purposes, annealed and tempered, straightened and cut any length, manufactured and sold by

**ICHABOD WASHBURN.**

Worcester, Mass., May 25, 1849.

**American and Foreign Iron.****FOR SALE,**

300 Tons A 1, Iron Dale Foundry Iron.

100 " 1, " " "

100 " 2, " " "

100 " " Forge " "

400 " Wilkesbarre " "

100 " "Roaring Run" Foundry Iron.

300 " Fort " "

50 " Catocin " "

250 " Chikiswalungo " "

50 " "Columbia" "chilling" iron, a very superior article for car wheels.

75 " "Columbia" refined boiler blooms.

30 " 1 x 1/2 Slit iron.

50 " Best Penna. boiler iron.

50 " "Puddled" " "

50 " Bagnall & Sons refined bar iron.

50 " Common bar iron.

Locomotive and other boiler iron furnished to order.

**GOODHUE & CO.,**

New York. 64 South street

**American Pig, Bloom and Boiler Iron.**

**HENRY THOMPSON & SON,**

No 57 South Gay St., Baltimore, Md.,  
Offer for sale Hot Blast Charcoal Pig Iron made at the Catocin (Maryland), and Taylor (Virginia), Furnaces; Cold Blast Charcoal Pig Iron from the Cloverdale and Catawba, Va., Furnaces, suitable for Wheels or Machinery requiring extra strength; also Boiler and Flue Iron from the mills of Edge & Hilles in Delaware, and best quality Boiler Blooms made from Cold Blast Pig Iron at the Shenandoah Works, Va. The productions of the above establishments can always be had at the lowest market price for approved paper.

American Pig Iron of other brands, and Rolled and Hammered Bar Iron furnished at lowest prices. Agents for Watson's Perth Amboy Fire Bricks, and Rich & Cos. New York Salamander Iron Chests. Baltimore, June 14, 1849. 6 mos

**Wheel, Forge and Foundry Iron.**

**LOCUST GROVE** Wheel Iron of great strength and superior chilling property.

Balt. Charcoal Forge Iron, from Patuxent, Curtis Creek and Gunpowder furnaces.

Elkridge Foundry Iron, of superior strength and softness. Anthracite and Charcoal Iron from Pennsylvania and Virginia. Gas and Water Pipes, Lamp Posts from Elkridge furnace.

**LEMMON & GLENN,**

6m9 62 Buchanan's Wharf, Baltimore.

**Iron.**

THE SUBSCRIBERS having resumed the agency of the New-Jersey Iron Company, are prepared to execute orders for the different kinds and sizes of Iron usually made at the works of the company, and offer for sale on advantageous terms.—

150 tons No. 1 Boonton Foundry Pig Iron.

100 " No. 2 do. do. do.

300 " Nos. 2 & 3 Forge do. do.

100 " No. 2 Glendon do. do.

140 " Nos. 2 & 3 Lehigh Crane do. do.

100 " No. 1 Pompton Charcoal do.

100 " New-Jersey Blooms

50 " New-Jersey Faggotting Iron, for shafts

Best Bars, 1/2 to 4 inch by 1/2 to 1 inch thick.

Do do Rounds and Squares, 1/2 to 3 inch.

Rounds and Squares, 3-16 to 1 inch.

Half Rounds, 1/2 to 1 in. Ovals & Half Ovals 1/2 to 1 1/2 in.

Bands, 1/2 to 4 inch. Hoops, 1/2 to 2 inch.

Trunk Hoops, 1/2 to 1 1/2 in. Horse Shoe & Nut Iron.

Nail Plates. Railroad Spikes.

**DUDLEY B. FULLER & Co.,** 139 Greenwich-st. and 85 Broad-st.

**WILLIAM JESSOP & SONS' CELEBRATED CAST-STEEL.**

The subscribers have on hand, and are constantly receiving from their manufactory.

**PARK WORKS, SHEFFIELD,**

Double Refined Cast Steel—square, flat and octagon. Best warranted Cast Steel—square, flat and octagon. Best double and single Shear Steel—warranted. Machinery Steel—round.

Best and 2d gy. Sheet Steel—for saws and other purposes.

German Steel—flat and square, "W. I. & S." "Eagle" and "Goat" stamps.

Genuine "Sykes," L. Blister Steel.

Best English Blister Steel, etc., etc., etc.

All of which are offered for sale on the most favorable terms by

**WM. JESSOP & SONS,**

91 John street, New York.

Also by their Agents—

Curtis & Hand, 47 Commerce street, Philadelphia.

Alex'r Fullerton & Co., 119 Milk street, Boston.

Stickney & Beatty, South Charles street, Baltimore.

May 6, 1849.

**JOHNSON, CAMMELL & Co's Celebrated Cast Steel,**

AND

**ENGINEERING AND MACHINE FILES,**

which for quality and adaptation to mechanical uses, have been proved superior to any in the United States. Every description of square, octagon, flat and round cast steel, sheet, shovel and railway spring steel, best double and single shear steel, German steel, flat and square, goat stamps, etc. Saw and file steel, and steel to order for any purposes, manufactured at their Cyclops Steel Works Sheffield.

**JOHNSON, CAMMELL & CO.,**

100 William St., New York.

November 23 1849.

**Railroad Iron.**

**OF ANY PATTERN AND WEIGHT,**  
Of a Favorite Brand,

And deliverable in Bond, or Duty paid, at any Port of the U. S., contracted for on favorable terms, by

**CHARLES ILLIUS,**

20 Beaver St., New York.

Pig and other Iron also contracted for. Sole Agent for "Baxter's Machine and Burning Oil"—particularly adapted for "Railroads" and other Machinery—Preferred to Sperm by the many now using it, and 25 per cent. cheaper.

**CUT NAILS OF BEST QUALITY, BAR IRON**  
(including Flat Rails) manufactured and for sale by

**FISHER, MORGAN & CO.,**

75 N. Water St., Philadelphia.

**Ogden & Martin's ROSENDALE CEMENT.**

WE are prepared to enter into arrangements for supplying our Cement for public works or other purposes. We warrant the cement equal in every respect to any manufactured in this country. It attains a great degree of hardness, sets immediately under water, and is a superior article for masonry coming in contact with water, or requiring great strength.

For sale in tight barrels, well papered, at their office by **OGDEN & MARTIN,** 104 Wall st. ly\* February 16, 1850.

The above cement is used in most of the fortifications building by government.

**To Steam Engine Builders.**

THE Undersigned offer for sale, at less than half its cost, the following new machinery, calculated for an engine of 62 inches cylinder and 10 feet stroke, viz.

2 Wrought Iron Cranks, 60 inches from centre to centre.

1 Do. do. Connecting Rod Strap.

2 Do. do. Crank Pins.

1 Eccentric Strap.

1 Diagonal Link with Brasses.

1 Cast Iron Lever Beam (forked).

The above machinery was made at the West Point Foundry for the U. S. Steamer Missouri, without regard to expense, is all finished complete for putting together, and has never been used. Drawings of the cranks can be seen on application to

**HENRY THOMPSON & SON,**

No. 57 South Gay St., Baltimore, Md.

Sept. 12, 1849.

**8,000 Tons Railroad Iron.**

THE OHIO AND PENNSYLVANIA RAILROAD CO. wish to contract for eight thousand tons of Railroad Iron, for the eastern division of their road, extending westward from Pittsburgh. Three thousand tons to be delivered on the Ohio river at Pittsburgh and Beaver, before the close of canal navigation in the present year, 1850; and the remainder in the spring of next year. The rails are to be of the H pattern, in lengths of 20 feet, and are to weigh 60 lbs. per lineal yard. They are to be subject to the inspection of Solomon W. Roberts, Chief Engineer.—For further particulars address the President of the Company at Pittsburgh.

By order of the Board of Directors.

**WM. ROBINSON, Jr., President.**

**S. S. Keyser & Co., IRON WAREHOUSE,**

Corner of South and Pratt Streets,

**BALTIMORE, MD.**

Selling Agents for the Rough and Ready Bar Iron and Elk Boiler and Flue Iron Rolling Mills, Sarah and Taylor Furnaces, and Wrightsville Hollow Ware Foundry, and Dealers in Bar and Sheet Iron, and Cast, Sheer, German, Blister, Spring and Electroplated Steel, etc., etc.

**Smith & Tyson,**

**GENERAL COMMISSION MERCHANTS,**

No. 25 South Charles St., Baltimore, Md.

**AGENTS** for the Celebrated Columbia Pig Iron,

A suitable for Car Wheels and Chilled Rolls.

Columbia refined Charcoal Blooms; Refined Charcoal Juniata Billet Iron for Wire; Refined Iron for Bridging, of great strength; Cut Nails, Spikes, and Brads; Railroad Spikes and Wrought Chairs. 22tf

**To Railroad Companies and Contractors.**

**FOR SALE.**—Two Locomotive Engines and Tenders, at present in use on the Beaver Meadow Railroad, being too light for their coal trains, but well calculated for either gravel or light passenger trains.

They weigh, in running order, about 8 tons each—having one pair of driving wheels 4 feet diameter, 4 truck wheels 30 inches diameter, with cylinders 10 in. diameter, and 18 inches stroke of piston. Tenders on 4 wheels. Address **JAMES ROWLAND,**

Prest. Beaver Meadow Railroad & Coal Co.,

Philadelphia.

or, **L. CHAMBERLAIN, Sec'y,**

at Beaver Meadow, Pa.

May 19, 1849. 20tf

**Railroad Instruments.**

**THEODOLITES, TRANSIT COMPASSES,** and Levels, with Fraunhoffer's Munich Glasses, Surveyor's Compasses, Chains, Drawing Instruments, Barometers, etc., all of the best quality and workmanship, for sale at unusually low prices, by

**E. & G. W. BLUNT,**

No. 179 Water St., cor. Burling Slip.

New York, May 19, 1849.

**Rosendale Cement.**

THE NEWARK AND ROSENDALE LIME AND CEMENT CO. are now manufacturing at their works in NEWARK, N. J., and Ulster county, N. Y., a very superior article of Hydraulic Cement—also Lime Calcare Plaster, etc. Contractors and dealers will find it to their advantage to call or make application before purchasing elsewhere. All communications addressed to the subscriber, at Newark, N. J., will be punctually attended to.

ly\*15 **HENRY WILDE, Secretary.**



### Patent India Rubber Steam Packing.

THIS article, made by the subscriber, who alone is authorised to make it, is warranted to stand as high a degree of heat as any that has been or can be made by any person—and is the article which has made the reputation of India Rubber Steam Packing and the demand therefor. A large assortment of all thick nesses requisite for any description of engines, steam pipes, valves, etc., constantly on hand and for sale by the manufacturer and patentee, who will give every information regarding its properties, mode of use, etc. at the warehouse. JOHN GREACHEN, JR., 98 Broadway, opposite Trinity Church. New York, October, 1849.

### Passenger Car Linings.

THE Advertiser continues to make to order the Enamelled Car Linings which have been so highly approved the last three years, and are now exclusively used by all the Northern Railroads. No pains are spared to get out new styles, and adapt them to the tastes of every consumer. Orders addressed to CHARLES STODDER, No. 75 Kilby street, Boston, will have prompt attention. March 23, 1850. 2m

### CAUTION.

RAILROAD COMPANIES and others are hereby cautioned against using or vending our improvement for easing the lateral motion as applied on Railroad Cars. Letters Patent having been granted to us in 1841, any party or parties so making or using said improvement without license from us will be proceeded against according to law. DAVENPORT & BRIDGES.



### P. H. Griffin,

Corner of Steuben and James Sts. Albany, N.Y. CONTINUES to manufacture copper flues for locomotive boilers, brewers' coppers, stills, tanner heaters, etc. Copper work in general, at the shortest notice. He has constantly on hand brass cocks, brass valves, copper pumps of every variety. Orders promptly attended to. 1y14

### FOWLER M. RAY'S Patent India-rubber Railroad CAR SPRING.

New York and Erie Railroad Shops. Piermont, March 26, 1850.

This will certify that from practical experience in the use of Fowler M. Ray's India rubber Car Springs, I believe them to be far superior to any others now in use.

I have never known them to be affected by any change of temperature, as other Rubber Springs have been affected on this road.

I am at the present time repairing a Passenger Car that Mr. Ray and myself mounted with his springs about two years and eight months since.

The springs are at the present time as perfect, to all appearances, as when first applied to the car.

Respectfully yours,

HORACE B. GARDNER, Foreman of the Car Shops.

Supt. Office N.Y. & H. R.R., New York, March 8, 1850.

This is to certify that we have used the Rubber Springs manufactured by Mr. F. M. Ray for the past twenty months, "both for Passenger and Freight Car Springs and Bumpers, and of different sizes," and have in every case given entire satisfaction, and I consider them the best spring now in use.

M. SLOAT, Supt.

Harlem R.R. Depot, New York, March 7, 1850.

This is to certify that we have used Mr. F. M. Ray's India-rubber Springs for over eighteen months, and find them to be easy and durable, and recommend them to railroad companies as being superior to anything we have tried.

J. M. SMART, Foreman at 42d St. Depot.

Office New Jersey Railroad Co., Jersey City, March 8, 1850.

FOWLER M. RAY, Esq.,

Dear Sir: In answer to your enquiries respecting the operation of the Vulcanised Rubber Springs, purchased by our company from you some two years since, I reply that they are superior to any spring in use, (that I have either seen or heard of).

The improved form of your spring, consisting of a solid piece of vulcanised rubber with bands on the outside, is far superior to your first form, consisting of disks of rubber with metallic plates interposed.

The last named form was tried, if you recollect, at a much earlier period; and then was replaced by your last form.

I have no hesitation in saying that your springs have given entire satisfaction, and most cheerfully recommend them to railroad companies throughout the country for the following reasons:

- 1st. The cost is 30 per cent. less.
- 2d. Saving of weight on each car of 8 wheels from 700 to 800 lbs.
- 3d. Less care and attention is required, as they are not liable to get out of repair.
- 4th. A great saving is secured in the wear and tear of the cars and rails from their great elasticity.
- 5th. The freedom from noise.
- 6th. There is greater safety in case of accident, as they cannot be broken.
- 7th. The comfort of passengers is enhanced sufficiently to pay the expense, waiving all the other reasons that I have given.

Should this fail to satisfy any person enquiring, you are at liberty to refer to me, No. 150 Washington St., Jersey City. Yours respectfully,

T. L. SMITH, Supt.

New York, March 11, 1850.

I have used the Patent India-rubber Spring purchased of Mr. Ray, upon the cars of the New York and New Haven Railroad, and have found them efficient and economical; and when applied to the axles and draw springs, believe them to be quite equal to any in use. I have found a combination of these springs with a steel spring under the transom beam a very satisfactory arrangement, and am now using this plan in all new cars. Yours respectfully,

ROBERT SCHUYLER.

February 25, 1850.

From practical observation of the use of the India-rubber Car Springs, manufactured and sold by your company, we are entirely satisfied in their application, and do not hesitate to recommend them as elastic, durable, requiring no repairs for years, and retaining their consistency during all extremes of weather. We have applied them for the past two years, and consider them superior for all railroad purposes.

Yours truly,

OSGOOD BRADLEY, Car Builder, Worcester.  
T. & C. WASON, do. Springfield.  
DEAN, PACKARD & MILLS, do. do.  
DAVENPORT & BRIDGES, do. Cambridgeport.

Office of the New Jersey Railroad Co., Jersey City, March 7, 1850.

This is to certify that we have had Mr. F. M. Ray's India-rubber Springs in constant use under our cars, and as Bumper Springs for upwards of two years, and they have in every way given perfect satisfaction.

The present form of spring we deem far superior to the form of Disk, having used both forms, although we have none of those made in Disks at present in use.

We take pleasure in recommending these springs to all railroad companies.

J. P. JACKSON, Vice Pres.  
New Jersey Railroad and Trans. Co.

Roxbury, February 28, 1850.

In compliance with your request, I take great pleasure in stating the result of my experience in the use of "Ray's Patented Vulcanised India-rubber Car and Engine Springs." We have used them nearly two years, and never had one fail in any way. The cold weather does not affect them, as it has other rubber springs we have used.

With sixteen years' experience as superintendent of machinery on the Boston and Providence railroad, I take pleasure in saying that your springs are the best we ever used, or I ever saw used elsewhere. We have 20 cars rigged with them, of which I can say that the springs are as good now as when first applied. I put 24 lbs. of the rubber under the forward end of one of our heaviest engines, taking off 250 lbs. of steel springs—it has been in use 18 months, and is in as good condition now as when first put under the engine.

Very respectfully yours,

GEO. S. GRIGGS, Supt. of Machinery, Boston and Prov. R.R.

Fall River, February 2, 1850.

In answer to yours of the 20th ult. I would say that this company has for some 10 or 12 months past been using "Ray's India-rubber Springs." We have applied them to both passenger and freight cars with uniform success. They have invariably preserved their elasticity and consistency through all the extremes of weather; and we are now applying them whenever the steel spring fails. I am well satisfied that they are particularly adapted for railroad purposes.

Very respectfully yours,

GEO. HAVEN, Supt. Fall River Railroad.

Jersey City, March 9, 1850.

This is to certify that the present form of Mr. F. M. Ray's India-rubber Car Spring I consider far superior to the form of Disk, having used both forms.

I take pleasure in recommending these springs to all railroad companies. DAVID H. BAKER, Foreman of Car Shop of N.J. R.R. & Trans. Co.

Boston, March 5, 1850.

In answer to your enquiry about India-rubber Springs, I have to say that we have used them to a considerable extent on both freight and passenger cars, and also on several of our tenders; and I am very well satisfied that they answer all the purposes for which they are intended. I believe the India-rubber will soon supersede all other springs for cars and tenders.

Yours truly,

S. M. FELTON, Supt. Fitchburg Railroad.

Old Colony Railroad Office, Boston, March 6, 1850.

EDWARD CRANE, Esq.,

President New England Car Co.,

Dear Sir: In compliance with your request I would state that the Old Colony Railroad Company have had in use upon their road, India-rubber Springs furnished by your company, for more than eighteen months past, during which time they have been extensively used under Passenger and Freight Cars, Locomotive Tenders, and for Drawer and Buffering Springs, with the most perfect success. The elasticity and consistency of the Rubber has never been unfavorably affected by either extremes of heat or cold—and from the experience which we have had in the use of Rubber Springs, I think them well adapted for railroad purposes—and therefore we have for some months past used Rubber almost exclusively, in all places where springs are required.

Respectfully yours, etc.,

JAS. H. MOORE, Supt. O. C. Road.

Troy, February 27, 1850.

We have been using your India-rubber Car Springs for nearly two years—and we take pleasure in saying that in our opinion the rubber has to a certain extent already, and may eventually entirely supersede all other Springs for Railroad Car purposes. We now use it entirely for Draw Springs and Bumpers, considering it better and lighter than steel.

During our two years' experience in the use of it, we have not known any to lose their elasticity, or fail in any way; and we cheerfully recommend the rubber for railroad car springs. Very respectfully,

EATON, GILBERT & CO.

### To Practical Machinists.

AN excellent opportunity now occurs to a practical Machinist, of WELL ESTABLISHED REPUTATION, and some capital, to engage extensively in the STEAM ENGINE, BOILER AND FOUNDRY BUSINESS.

An establishment is now ready for business, ample in all its details, including extensive wharf room, for any sized steamboats, and from its position, if properly conducted, will doubtless command a large share of business.

A practical Machinist, as a partner is required, to conduct the whole establishment: and only those FULLY COMPETENT need apply. Address (post paid) "MACHINE CO.," Box No. 741, Philadelphia, Pa. 1m14

### Etna Safety Fuse.

THIS superior article for igniting the charge in wet or dry blasting, made with DUPONT'S best powder, is kept for sale at the office and depot of

REYNOLDS & BROTHER,

Sole Manufacturers, No. 85 Liberty St.

NEW YORK.

And in the principal cities and towns in the U. States.

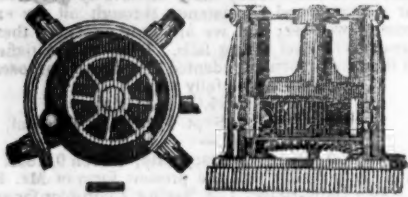
The Premium of the AMERICAN INSTITUTE was awarded to the Etna Safety Fuse at the late Fair held in this city.

November 3, 1849.

1y

## MACHINERY.

## Henry Burden's Patent Revolving Shingling Machine.



THE Subscriber having recently purchased the right of this machine for the United States, now offers to make transfers of the right to run said machine, or sell to those who may be desirous to purchase the right for one or more of the States.

This machine is now in successful operation in ten or twelve iron works in and about the vicinity of Pittsburgh, also at Phoenixville and Reading, Pa., Covington Iron Works, Md., Troy Rolling Mills, and Troy Iron and Nail Factory, Troy, N. Y., where it has given universal satisfaction.

Its advantages over the ordinary Forge Hammer are numerous: considerable saving in first cost; saving in power; the entire saving of shingler's, or hammerman's wages, as no attendance whatever is necessary, it being entirely self-acting; saving in time from the quantity of work done, as one machine is capable of working the iron from sixty puddling furnaces; saving of waste, as nothing but the scoria is thrown off, and that most effectually; saving of staffs, as none are used or required. The time required to furnish a bloom being only about six seconds, the scoria has no time to set, consequently is got rid of much easier than when allowed to congeal as under the hammer. The iron being discharged from the machine so hot, rolls better and is much easier on the rollers and machinery. The bars roll sounder, and are much better finished. The subscriber feels confident that persons who will examine for themselves the machinery in operation, will find it possesses more advantages than have been enumerated. For further particulars address the subscriber at Troy, N. Y. P. A. BURDEN.

## Railroad Spikes and Wrought Iron Fastenings.

THE TROY IRON AND NAIL FACTORY, exclusive owner of all Henry Burden's Patented Machinery for making Spikes, have facilities for manufacturing large quantities upon short notice, and of a quality unsurpassed.

Wrought Iron Chairs, Clamps, Keys and Bolts for Railroad fastenings, also made to order. A full assortment of Ship and Boat Spikes always on hand.

All orders addressed to the Agent at the Factory will receive immediate attention.

P. A. BURDEN, Agent,  
Troy Iron and Nail Factory, Troy, N. Y.

## RAILROAD WHEELS.

CHILLED RAILROAD WHEELS.—THE UNDERSIGNED are now prepared to manufacture their Improved Corrugated Car Wheels, or Wheels with any form of spokes or discs, by a new process which prevents all strain on the metal, such as is produced in all other chilled wheels, by the manner of casting and cooling. By this new method of manufacture, the hubs of all kinds of wheels may be made whole—that is, without dividing them into sections—thus rendering the expense of banding unnecessary; and the wheels subjected to this process will be much stronger than those of the same size and weight, when made in the ordinary way.

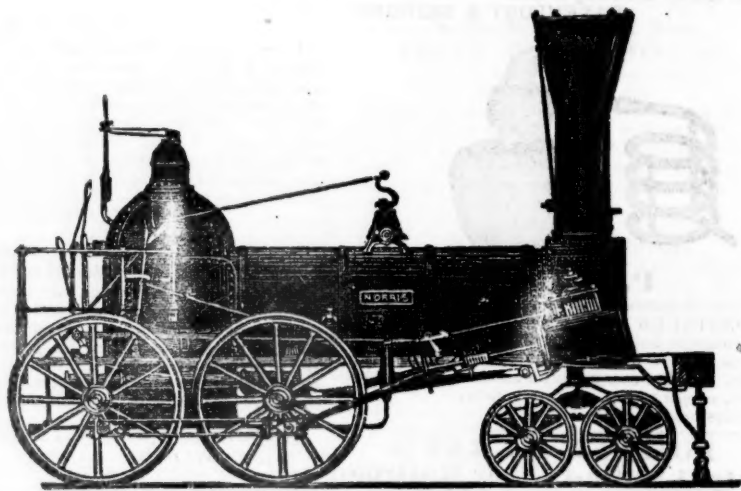
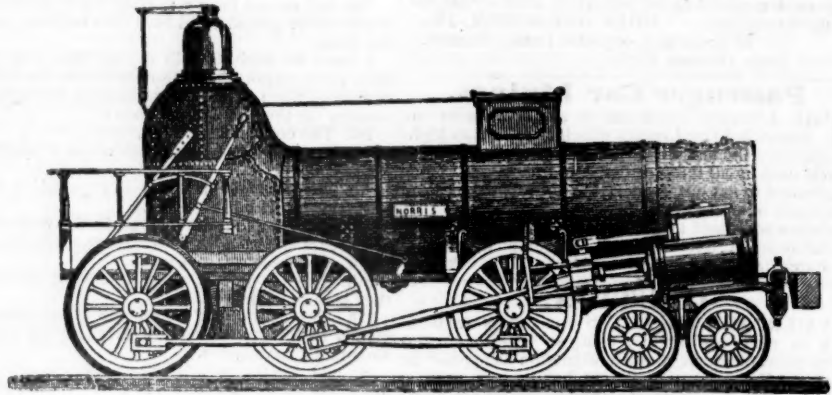
A. WHITNEY & SON,  
Willow St., below 13th,  
Philadelphia, Pa.

CHILLED RAILROAD WHEELS.—THE UNDERSIGNED, the Original Inventor of the Plate Wheel with solid hub, is prepared to execute all orders for the same, promptly and faithfully, and solicits a share of the patronage for those kind of wheels which are now so much preferred, and which he originally produced after a large expenditure of time and money.

A. TIERS,  
Point Pleasant Foundry.

He also offers to furnish Rolling Mill Castings, and other Mill Gearing, with promptness, having, he believes, the largest stock of such patterns to be found in the country.

Kensington, Philadelphia Co., }  
March 12, 1848. }

NORRIS' LOCOMOTIVE WORKS.  
BUSHHILL, SCHUYLKILL SIXTH-ST., PHILADELPHIA.

THE UNDERSIGNED Manufacture to order Locomotive Steam Engines of any plan or size. Their shops being enlarged, and their arrangements considerably extended to facilitate the speedy execution of work in this branch, they can offer to Railway Companies unusual advantages for prompt delivery of Machinery of superior workmanship and finish.

Connected with the Locomotive business, they are also prepared to furnish, at short notice, Chilled Wheels for Cars of superior quality.

Wrought Iron Tyres made of any required size—the exact diameter of the Wheel Centre, being given, the Tyres are made to fit on same without the necessity of turning out inside.

Iron and Brass castings, Axles, etc., fitted up complete with Trucks or otherwise.

NORRIS, BROTHERS

LAWRENCE'S ROSENDALE HYDRAULIC Cement. This Cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Flooms, and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years. For sale in lots to suit purchasers, in tight papered barrels, by

JOHN W. LAWRENCE,  
142 Front-street, New York.

Orders for the above will be received and promptly attended to at this office. 32 ly.

## PATENT MACHINE MADE HORSE-SHOES.

The Troy Iron and Nail Factory have all ways on hand a general assortment of Horse Shoes, made from Refined American Iron.

Four sizes being made, it will be well for those ordering to remember that the size of the shoe increases as the numbers—No. 1 being the smallest.

P. A. BURDEN, Agent,  
Troy Iron and Nail Factory, Troy, N. Y.

COLUMBUS, OHIO,  
Railroad Car Manufactory.  
RIDGWAYS & KIMBALL,

HAVE established at this central point, the manufacture of Passenger, Freight, Gravel and Hand Cars for Railroads, and assure all Western Railroad Companies that it will be their constant aim to procure the best materials and workmen, and to turn out the best kind of work at fair prices. Specimens may be seen on the Columbus and Xenia Railroad. The patronage of Railroad Companies is respectfully solicited. 1y8

## To Inventors and Patentees.

OWEN G WARREN, ARCHITECT, Has had many years' experience as Agent for obtaining Patents, both in this country and Europe, and will transact such business promptly and reasonably. Persons at a distance can have their business done by correspondence—without the necessity of visiting this city or Washington. Office No. 94 Merchants Exchange, Wall st., corner of Hanover st., up stairs. 1y3



**MR. HALE:**—The New England Car Co., having been engaged for the last six months in introducing the Vulcanized India-rubber Car Springs upon the different railroads in this and other states, and having in particular introduced it upon the Boston and Worcester railroad with perfect success, were much gratified to find, by your paper of this morning, that the article had given satisfaction to the president of that corporation, and the terms of just commendation in which you were pleased to speak of it. But their gratification was scarcely equalled by their surprise, when, or arriving at the close of your paragraph, they found the results of all their labors attributed to a foreign source, with which the New England Car Co. has no connection. The material used on the Boston and Worcester railroad, and all the other railroads in this country, where any preparation of India-rubber has been successfully applied, is entirely an American invention, patented in the year 1844 to Charles Good-year, of New Haven, Conn., and the application of it to this purpose and the form in which it is applied are the invention of F. M. Ray of New York. The only material now in use, and so far as has yet appeared, the only preparation of India rubber capable of answering the purpose, has been furnished under these patents by the New England Car Company, manufactured under the immediate inspection of their own agent. If any other should be produced, the right to use it would depend upon the question of its interference with Mr. Goodyear's patent. The New England Car Company have their place of business in this city at No. 99 State street, and are prepared to answer all orders for the Vulcanized India rubber Car Springs, of the same quality and of the same manufacture as those which they have already placed on your road, and most of the other roads terminating in this city."

And yet Mr. Knevit is using these experiments made upon the Springs of the Car Company to induce the public to purchase his springs, and is attempting to impose upon them the belief that the springs used were furnished by him! We ask whether such a course is honorable, or entitles his statements to much consideration from the public.

The above Springs are for sale 98 Broadway, New York, and 99 State street, Boston.

EDWARD CRANE Agent, Boston.  
F. M. RAY, Agent, New York.

Boston, May 8, 1849.

## Ballard's Improved JACK-SCREW.

PATENTED.

**THE ADVANTAGES OF THIS** Screw for Stone Quarries, Railroads, Steam Boiler Builders, and for other purposes are superior to any other similar machine.

The improvement consists in being able to use either end of the screw, as occasion requires.

It is capable of raising the heaviest Locomotive with ease, being portable, strong and powerful, and not likely to get out of order.

Many Railroad Companies and Boiler Makers have them in use—by whom they are highly recommended.

**JACK SCREWS,** of various sizes, power and price, constantly on hand at the manufactory.

No. 7 Eldridge Street,  
near Division Street.  
New York, Jan. 19, 1850.



**NICOLL'S PATENT SAFETY SWITCH FOR** Railroad Turnouts. This invention for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design. It acts independently of the main track rails; being laid down or removed without cutting or displacing them.

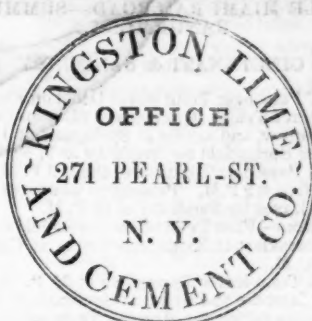
It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two castings and two rails; the latter, even if much worn or used, not objectionable.

Working models of the Safety Switch may be seen at Messrs. Davenport, Bridges & Kirk's Cambridge Port, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained, on application to the Subscriber, Inventor and Patentee.

G. A. NICOLLS,  
Reading, Pa.

## Hydraulic Cement.



**HYDRAULIC CEMENT, OF BEST QUALITY,** manufactured at their works, for sale in lots to suit purchasers.

Also, Ground Lime, a superior article for Builders.  
ISAAC FRYER, Sec'y.  
January 19, 1850.

## Engine and Car Works, PORTLAND, MAINE.

**THE PORTLAND COMPANY,** Incorporated August 8th, 1846, with a capital of \$250,000, have erected their extensive Works upon the deep water of Portland Harbor, and receive and transport, to and from their works direct, to and from vessels of any class.

They now manufacture to order, and deliver upon the Railroads running in each direction from the city, or on shipboard as wanted, Locomotive, Stationary, or Steam Boat Engines; Passenger, Mail, Freight, Earth and Hand Cars; Railway Frogs, Switches, Chairs and Castings; and every other description of Machinery.

HORACE FELTON,  
Superintendent.

JAMES C. CHURCHILL,  
General Agent and Clerk.

## RAILROADS.

### EASTERN RAILROAD.

#### WINTER ARRANGEMENT.

On and after Monday, October 8, 1849, trains leave Boston daily (Sundays excepted);

For Lynn, 7, 8½, 10 a.m., 12½, 2½, 4, 4½, 6½, p.m.  
Salem, 7, 8½, 10 a.m., 12½, 2½, 4, 4½, 6½, p.m.  
Manchester and Gloucester, 10 a.m., 4 p.m.  
Newburyport, 7 a.m., 12½, 2½, 4½, p.m.  
Portsmouth, 7 a.m., 2½, 4½, p.m.  
Portland, Me., 7 a.m., 2½, p.m.

And for Boston,  
From Portland, 8½ a.m., 4 p.m.  
Portsmouth, 7, 10½, a.m., 6½, p.m.  
Newburyport, 7½, 11½, a.m., 3½, 7, p.m.  
Gloucester, 7½, a.m., 1½ p.m.  
Manchester, 8 a.m., 2 p.m.,  
Lynn, 7½, 8½, 9½, 10½ a.m., 12 55\*, 2½\* 4½\* 8½\* p.m.  
Salem, 7½, 8½, 9\*, 10½ a.m., 12 40\*, 2½\* 4½\*, 8\*, p.m.

\* Or on their arrival from the East.  
Freight trains each way daily. Office 17 Merchants' Row, Boston.  
Feb. 3. JOHN KINSMAN, Superintendent.

#### ALBANY AND BUFFALO RAILROADS.

Four Trains daily, Sundays excepted, viz:  
Leave Albany, 6 a.m., 9 a.m., 2 p.m., 7 p.m.  
Reach Buffalo, 15 hours, 18 hours, 23 hours, 18 hours.  
Arrive from Buffalo, 7 p.m., 2½ a.m., 12½ m., 3½ p.m.

Passengers by the Express Train reach Buffalo from New York, and New York from Buffalo, in 24 hours. The Isaac Newton and Oregon connect at Albany with this Train. Baggage cars, with careful baggage masters, run through with all the trains.

For Schenectady, Saratoga Springs & Whitehall, Leave Albany at 7 a.m. and 2 p.m. For Schenectady only at 6, 7 and 9 a.m. and 12½, 2 and 7 p.m. For Erie Canal packets at 7 a.m. and 7 p.m. By Plank Road from Schenectady to Saratoga at all hours by stages, etc.

The Eastern Trains leave Albany at 7 a.m. and 3 p.m. The wagons of the company take baggage free between railroads and steamboats at Albany.

E. FOSTER, Jr., Sec'y  
Albany and Schenectady Railroad Co.  
Albany, August, 1849.

## BOSTON AND MAINE RAILROAD.

### Winter Arrangement, 1850.

Outward Trains from Boston  
For Portland at 7 a.m. and 2½ p.m.  
For Rochester at 7 a.m., 2½ p.m.  
For Great Falls at 7 a.m., 2½, 3½ p.m.  
For Haverhill at 7 and 9½ a.m., 2½, 3½, 5½, p.m.  
For Lawrence 7, 7½, 9½ a.m., 12m. 2½, 3½, 4½, 5½, p.m.  
For Reading 7, 9½ a.m., 12m. 2½, 3½, 4½, 5½, 7½, 9½ p.m.  
For Medford 7½, 9½ a.m., 12½, 2½, 5, 6½, 9½ p.m.  
The Station in Boston is on Haymarket Square.

CHAS. MINOT, Super't.

January 10, 1850.

## NEW YORK AND HARLEM RAILROAD.

### NEW ARRANGEMENT.

On and after Wednesday, October 17th, 1849, the Cars will run as follows, (Sundays excepted) until further notice:

Trains will leave the City Hall, New York, for—  
Harlem and Morrisania at 6½, 8, 10, 11, 12 a.m., 2, 3½, 4, 5, 6½ p.m.  
New Village, at 8½, 10, 12 a.m., 3½, 5, 6½ p.m.  
Fordham and Williams' Bridge, at 8½, 10, 12 a.m., 2½, 3½, 5, 6½ p.m.  
Hunt's Bridge, Underhill's and Hart's Corners, at 8½, 10 a.m., 3½, 5 p.m.  
Tuckahoe and White Plains, at 8½, 10 a.m., 2½, 3½, 5 p.m.  
Pleasantville, New Castle, Bedford, Mechanicsville, Purdy's, Croton Falls, and intermediate stations, on signal, 8½ a.m., 2½, 3½ p.m.  
Brewster's, Towner's, Patterson, Paulding's, South Dover, Dover Furnace, and Dover Plains, 8½ a.m., 2½ p.m.

**NOTICE**—Passengers are reminded of the great danger of standing upon the platform of the cars, and hereby notified that the practice is contrary to the rules of the Company, and that they do not admit any responsibility for injury sustained by any passenger upon the platforms, in case of accident.

Returning to New York will leave

Harlem and Morrisiana at 6 08, 7½, 8 37, 9, 10 6, 12 a.m., 1 43, 3 07, 3½, 5, 5 47 p.m.  
New Village, at 5 58, 8 27, 9 56 a.m., 1 33, 2 57, 5 36 p.m.  
Fordham and William's Bridge at 5½, 8 14, 9 43, 10 57 a.m., 1 20, 2 44, 5 24 p.m.  
Hunt's Bridge at 8 04, 9 33 a.m., 2 34, 5 16 p.m. On signal.  
Underhill's, at 7 56, 9 23 a.m., 2 26, 5 10 p.m. On signal.  
Tuckahoe at 7 53, 9 18, 10 40 a.m., 2 23, 5 08 p.m.  
Hart's Corners at 7 38, 9 03 a.m., 2 08, 4 54 p.m.—On signal.  
White Plains at 7½, 8 55, 10 20 a.m., 2, 4 47 p.m.  
Davis' Brook at 8 40, 10 11 a.m., On signal. 4 39 p.m. On signal.  
Unionville, 8 27, 10 11 a.m. On signal. 4 29 p.m.—On signal.  
Pleasantville at 8 20, 9 56 a.m., 4 24 p.m.  
Champanqua, at 8 10, 9 50 a.m. On signal. 4 18 p.m. On signal.  
New Castle, at 7 56, 9 38 a.m., 4 07 p.m.  
Bedford at 7 46, 9 32 a.m., 4 02 p.m.  
Mechanicsville at 7 36, 9 22 a.m., 3 52 p.m.  
Golden's Bridge, 7 28, 9 17 a.m. On signal, 3 47 p.m. On signal.  
Purdy's at 7 20, 9 09 a.m., 3 39 p.m.  
Croton Falls, at 7½, 9 04 a.m., 3 34 p.m.  
Brewster's, at 8 50 a.m., 3 20 p.m.  
Towner's, at 8 35 a.m., 3 05 p.m.  
Patterson, at 8 27 a.m., 2 57 p.m.  
Paulding's, at 8 17 a.m., 2 47 p.m.  
South Dover, 8 02 a.m., 2 32 p.m.  
Dover Furnace, 7 55 a.m., 2 25 p.m.  
Dover Plains, at 7 45 a.m., 2 15 p.m.

The trains for Harlem and Morrisiana leaving City Hall at 6½, 8, 10, 11, 12, 2, 4 and 6½, returning from Morrisiana and Harlem at 6 08, 7½, 9, 12, 1 43, 3 07, 3½ and 5 o'clock, will land and receive passengers at 27th 42d, 51st, 61st, 79th, 86th, 109th, 115th, 125th and 132d streets.

The Dover Plains train from New York at 2½ p.m., returning leaving Dover Plains at 7½ a.m., will not stop between White Plains and New York, (except at Tuckahoe, Williams' Bridge and Fordham,) unless to leave passengers coming from above Croton Falls.

A car will precede each train ten minutes to take up passengers in the city. The last car will not stop, except at Broome st. and 27th street.

Freight Trains leave New York at 1 o'clock p.m.—Returning, leaves Dover Plains at 12 o'clock m.

For Sunday Arrangements, see hand bills.  
M. SLOAT, Sup't.

# AMERICAN RAILROAD JOURNAL.

## NEW YORK AND ERIE RAILROAD. CHANGE OF HOURS.

On and after Monday, May 6, 1850, the trains will leave as follows, by steamboat THOMAS POWELL, from the foot of Duane st. daily (Sundays excepted).  
Breakfast and supper on board the boat.

WAY AND MAIL TRAIN.—At 6½ a.m., stopping at all the stations—arriving a Corning and Jefferson about 10½ p.m., and at Buffalo next morning.

NIGHT TRAIN.—at 5 p.m., stopping at all the stations and arriving at Geneva in time to connect with the Express train from Albany, and arrive at Buffalo at 7 p.m., next day.

AN EXPRESS TRAIN.—Will commence running in a few days, of which due notice will be given.

FREIGHT TRAIN.—Leave New York, from foot of Duane st. daily, (Sundays excepted) at 5 p.m. Freight for Geneva, Rochester and Buffalo, forwarded by Express freight train.

CHAS. MINOT, Supt.  
New York, May 2, 1850.

## GEORGIA RAILROAD. FROM AUGUSTA TO ATLANTA—171 MILES.

AND WESTERN AND ATLANTIC RAILROAD, FROM ATLANTA TO DALTON, 100 MILES.

This Road, in connection with the South Carolina Railroad, and Western and Atlantic Railroad, now forms a continuous line, 408 miles in length, from Charleston to Dalton (Cross Plains) in Murray county, Ga. 32 miles from Chattanooga, Tenn.

### RATES OF FREIGHT.

	Between Augusta and Dalton.	Between Charleston and Dalton.
	271 miles.	408 miles.
1st class Boxes of Hats, Bonnets, and Furniture, per cubic foot	\$0 18	\$0 28
2d class Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs, and Confectionary, per 100 lbs.	1 00	1 50
3d class Sugar, Coffee, Liquor, Bagging, Rope, Cotton, Yarns, Tobacco, Leather, Hides, Copper, Tin, Feathers, Sheet Iron, Hollow ware, Castings, Crockery, etc.	0 60	0 85
4th class Flour Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Bar Iron, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc.	0 40	0 65
Cotton, per 100 lbs.	0 45	0 70
Molasses per hogshead	8 50	13 50
" " barrel	2 50	4 25
Salt per bushel	0 18	
Salt per Liverpool sack	0 65	
Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows, etc.	0 75	1 50

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Company will be forwarded free of commissions. Freight payable at Dalton.

F. C. ARMS, Supt of Transportation.

## To Miners and Mining Companies.

THE undersigned would respectfully call the attention of those persons engaged in mineral operations on Lake Superior to the following list of articles which will be sold on accommodating terms, viz:

- 600 bbls. Corn fed No. 1 Mess Pork.
- 500 " Stall fed Mess Beef.
- 25,000 lbs. " Sugar cured canvassed" Hams.
- 2,200 " Dried Beef.
- 60,000 " "Kiln dried" Corn Meal.
- 500 bush. White "Field" Beans.
- 300 " Canada" Peas.
- 500 " Dried Apples.
- 100 bbls. and half bbls. "cucumber" Pickles.
- 50 " Sour Krout.
- 30 bush. Onions.
- 1,000 Beefs' Tongues Smoked and in Pickle.
- 10,000 lbs. "Mould" Candles.
- 10,000 " "Hard" Soap.

Also, a full and large supply of all articles that may be required by Mining Companies and those connected with them.

C. A. TROWBRIDGE,

127 Jefferson Avenue, Detroit, Michigan.

## LITTLE MIAMI RAILROAD.—SUMMER ARRANGEMENT.

### CINCINNATI & SANDUSKY.

FIRST Passenger Train leaves Depot on East Front street, at 5 o'clock 10 minutes A. M. stops for breakfast at Morrow, and arrives at Springfield at 11 10 A. M. Leaves Springfield for Sandusky at 11 50 A. M.

Second Passenger Train leaves Depot 3 P. M. arrives at Springfield at 9 P. M. Passengers take tea at Springfield, and leaves for Sandusky at 9½ P. M.

RETURNING.—First Train leaves Springfield at 4 A. M. Stop for breakfast at Xenia, and arrives at Cincinnati at 10 15 A. M.

Second Train leaves Springfield at 2½ P. M. Stop for tea at Morrow, and arrives at Cincinnati at 8½ P. M.

Passengers taking the Morning Train arrive at Sandusky at 9 P. M. Those taking the Afternoon Train arrive at 7½ A. M. next morning, and proceed directly on in the boats.

Passengers for Columbus, Zanesville, Wheeling, and intermediate towns, should take the 5, 10 A. M., Train.

The Ohio Stage Company are running the following Lines in connection with the Trains:

A Daily Daylight Line to Columbus from Springfield in connection with the Morning Train from Cincinnati. Also, Daily Lines to Columbus, from Xenia and Springfield, connecting with the 3 o'clock, pm. Train from Cincinnati.

Fare from Cincinnati to Xenia	\$1 90
Do do Springfield	2 50
Do do Sandusky City	6 50
Do do Buffalo	10 00
Do do Columbus	4 50

For other information and through tickets, apply at the Ticket Office on Broadway, near Front-st., Cincinnati.

W. H. CLEMENT, Superintendent.

The Company will not be responsible for Baggage exceeding 50 dollars in value, unless the same is returned to the Conductors or Agent, and freight paid at the rate of a passage for every 500 dollars in value above that amount.

## PHILADELPHIA, WILMINGTON, & BALTIMORE RAILROAD.

Summer Arrangement.  
April 1st, 1849.—Fare \$3.

Leave Philadelphia 8½ am., and 10 pm.

Leave Baltimore 9 am. and 8 pm.

Sunday—Leave Philadelphia at 10 pm.

" Baltimore at 8 pm.

Trains stop at way stations.

Charleston, S. C.

Through tickets Philadelphia to Charleston, \$20.

Pittsburg and Wheeling.

Through ticket, Philadelphia to Pittsburg, \$12.

" " Wheeling, 13.

Through tickets sold at Philadelphia office only.

Wilmington Accommodation.

Leave Philadelphia at 12 m. 4 and 7 pm.

Leave Wilmington at 7½ am., 4½ and 7 pm.

Newcastle Line.

Leave Philadelphia at 2½ pm.—Baltimore at 1½ pm

Fare \$3.—Second class, \$2.

N.B.—Extra baggage charged for.

I. R. TRIMBLE, Gen. Supt.

## BALTIMORE AND SUSQUEHANNA RAILROAD.—Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.—The Passenger Trains

run daily, except Sundays, as follows:

Leave Baltimore at	9 am. and 3½ pm.
Arrive at	9 am. and 6½ pm.
Leave York at	5 am. and 3 pm.
Arrive at	12½ pm. & 8 pm.
Leave York for Columbia at	1½ pm. & 8 am.
Leave Columbia for York at	8 am. & 2 pm.

Fare to York

" Wrightsville

" Columbia

Way points in proportion.

PITTSBURG, GETTYSBURG, AND HARRISBURG.

Through tickets to Pittsburg via stage to Harris-

burg

Or via Lancaster by railroad

Through tickets to Harrisburg or Gettysburg

In connection with the afternoon train at 3½ o'clock,

a horse car is run to Green Spring and Owning's

Mill, arriving at the Mills at

Returning, leaves Owning's Mills at

D. C. H. BORDLEY, Supt.

Ticket Office, 63 North st.

## PHILADELPHIA & READING RAILROAD.

Passenger Train Arrangement for 1848.

A Passenger Train will leave Philadelphia and Pottsville daily, except Sundays, at 9 o'clock am.

The Train from Philadelphia arrives at Reading at 12 18 m.

The Train from Pottsville arrives at Reading at 10 43 am.

Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville,	92	\$3.50	and \$3.00
" " Reading	58	2.25	and 1.90
" " Pottsville	34	1.40	and 1.20

Five minutes allowed at Reading, and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets.

## BALTIMORE AND OHIO RAILROAD AND WASHINGTON BRANCH.

On and after January 1, 1850, Passenger Trains will run as follows:

Leave Baltimore for Ellicott's Mills, Frederick, Harper's Ferry, Martinsburg, Hancock and Cumberland, every morning at 7½ o'clock. This line carries the Great Mail, and connects with Post Coaches at Cumberland, for Wheeling and Pittsburg, over the National Road. Also with the Winchester Trains, at Harper's Ferry.

N.B.—Passengers for Pittsburg take the steamers of the Monongahela slack water navigation at Brownsville, only 76 miles from Cumberland.

Leave Baltimore for Ellicott's Mills, Frederick and Harper's Ferry, daily, except Sunday, at 4½ p.m.

Leave Baltimore for Washington City, daily, at 6 a.m. and 5 p.m.—daily, except Sunday, at 9 a.m.

The early train connects with the Great Southern Line, via Fredericksburg and Richmond, to Charleston.

Leave Cumberland for Baltimore, etc., at 8½ a.m., daily, connecting with the train from Winchester at Harper's Ferry—with the Evening Train to Washington City, at the Relay House—and with the Evening Train to Philadelphia, at Baltimore.

Time for arriving at Baltimore, 5½ p.m.

Leave Harper's Ferry for Baltimore, daily, except Sunday, at 7½ a.m.—taking in Passengers who leave Frederick at 8½ a.m.

Leave Washington for Baltimore, daily, at 6 a.m. & 5½ p.m., and daily, except Sunday, at 9½ a.m.

The early train connects at the Relay House with the morning line to Cumberland and the West, and at Baltimore with the day line to Philadelphia and New York.

Through tickets are sold at Philadelphia and Baltimore for Pittsburg and Wheeling, and at Philadelphia and New York for Charleston, S. C., at the following

RATES OF FARE.

To Pittsburg. Wheeling. Charles.

In winter. Summer. Win. Sum. ton.

From Philadelphia, \$13 \$12 \$14 \$13 \$20

" Baltimore, 11 10 12 11

" New York, 20

Passengers leaving New York not later than the afternoon line via Newark, etc., reach Baltimore in season to take the next morning's lines to the South and West.

Passengers leaving Cumberland in the morning and Washington in the evening lines, reach Baltimore in season to proceed to Philadelphia by the evening train at 8 p. m.—so as to reach New York before noon the next day.

An Emigrant line by burthen cars, leaves Baltimore every morning, except Sundays, at 4 o'clock—connecting with a line of the previous day from N. York—and at Cumberland with a wagon line to Pittsburg or Brownsville and Wheeling.

Fare by this line:

From New York to Pittsburg, \$8 00

" Philadelphia " 6 50

" Baltimore " 5 00

By order, J. T. ENGLAND, Agent.

## SOUTH CAROLINA RAILROAD.—A PAS-

senger Train runs daily from Charleston, on the

arrival of the boats from Wilmington,

N. C., in connection with trains on

the Georgia, and Western and Atlantic Railroads—and

by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia

Railroad in N. Alabama.

Fare through from Charleston to Montgomery

daily

Fare through from Charleston to Huntsville,

Decatur and Tuscumbia

The South Carolina Railroad Co. engage to receive

merchandise consigned to their order, and to forward

the same to any point on their road; and to the different

stations on the Georgia and Western and Atlantic

Railroad; and to Montgomery, Ala., by the West

Point and Montgomery Railroad.

JOHN KING, Jr., Agent.



**LAKE SUPERIOR LINE.**  
**Cleveland and Detroit,**

TO  
SAULT STE. MARIE, CARP RIVER, COPPER  
HARBOR, EAGLE RIVER, ISLE ROYAL,  
ONTONAGON AND LA POINT.

The Proprietors of this line having added largely to their facilities for transportation on this route, will be prepared to ship Goods to any part of Lake Superior during the coming season, and contract for the delivery of Copper Ore to either Boston, New York, or Pittsburg, being connected with the Troy and Western Line, from Detroit to New York, and a Daily line of Canal Boats

**FROM CLEVELAND TO PITTSBURG.****Lakes Huron and Erie.**

For this portion of the route, the Proprietors are fitting up a large Boat, with a powerful low pressure engine, and a spacious upper cabin, with state rooms, to take the place of the Franklin, which will leave CLEVELAND every Monday Evening at 7 o'clock, and DETROIT every Tuesday Afternoon at 2 o'clock, going to MACKINAW and the BRUCE MINES, and arriving at SAULT STE. MARIE on Thursday morning. The Franklin will leave Detroit every Friday for Mackinaw and Sault Ste. Marie, via the Bruce Mines. For the transportation of heavy masses of Copper, a Propeller will make trips as occasion may require.

**Lake Superior.**

Mr. McKnight, one of the Proprietors, is constructing a Wharf to the Channel Bank, at the head of the Portage, which will enable them to load their Propellers, NAPOLEON AND INDEPENDENCE, with but 24 hours' detention at Sault Ste. Marie. One of the Propellers will leave every Friday, making a trip through the Lake, touching at Carp River, Ontonagon and Isle Royal.

The great expense incurred in building wharves to facilitate business, it is hoped, will entitle the Proprietors of this Line to Patronage. Goods shipped by either G. WILLIAMS & CO., or S. P. BRADY, Agents, Detroit, will be received through to their destination on Lake Superior. Letters addressed to S. McKnight, Detroit, or Sault Ste. Marie, will receive attention. Supplies will be purchased and delivered at any point on Lake Superior, on the best possible terms, and all orders filled with articles of as good quality as the market affords.

**Canada Line.**

To facilitate the forwarding of Goods for the Canada Companies, a connection, has been made with PARK & CO., managing owners of the Propeller *Earl Cathcart*, forming a direct line from Montreal to the Bruce Mines and Sault Ste. Marie. Goods sent by this line, care of PARK & CO., Amherstburg, or CHAS. HUNT, Esq., Windsor, will be immediately forwarded, and at prices decidedly to the advantage of parties in Toronto or other Canadian Ports.

S. MCKNIGHT,  
J. R. LIVINGSTON,  
P. B. BARBEAU.

January, 1850.

**AGENTS.**

G. Williams & Co., } Detroit.  
S. P. Brady,  
P. L. Sternberg & Co., } Buffalo.  
Charles Hunt, Windsor.  
Park & Co., Amherstburg.  
W. A. Otis & Co., } Cleveland.  
Crawford and Chamberlain,  
Rice, Clapp & Co., New York.  
W. M. Gorrie, Toronto.

**MACHINE WORKS OF ROGERS KETCHUM & GROSVENOR, Patterson, N. J.** The undersigned receive orders for the following articles manufactured by them of the most superior description in every particular. Their works being extensive, and the number of hands employed being large, they are enabled to execute both large and small orders with promptness and dispatch.

**Railroad Work.**—Locomotive Steam Engines and Tenders; Driving and other Locomotive Wheels, Axles Springs and Flange Tires; Car Wheels of Cast Iron a variety of patterns and chills; Car Wheels of Cast Iron with wrought tires; Axles of best American refined iron; springs; boxes and bolts for cars.

**Cotton, Wool and Flax Machinery** of all descriptions and of the most improved patterns, style and workmanship.

**Mill gearing and millwright work** generally, hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

**ROGERS, KETCHUM & GROSVENOR,**  
Patterson, N. J. or 14 Broadway, New York.

**CENTRAL RAILROAD FROM SAVANNAH TO MACON, (Ga.) 190½ miles.**

Passenger Trains leave Savannah and Macon daily at 7 a.m.  
Passenger trains arrive daily at Savannah, 6 15 p.m.  
" " " " Macon, 6 45 p.m.

This road, in connection with the Macon and Western road from Macon to Atlanta, and the Western and Atlantic road from Atlanta to Dalton, now forms a continuous line of 391½ miles in length\* from Savannah to Dalton, Murray county, Ga. and with the Memphis Branch railroad, and Stages connect with the following places:

Tickets from Savannah to Macon,	\$5 75
" " " Atlanta,	9 50
" " " Augusta,	6 50
" " " Columbus,	15 00
" " " Opelika,†	17 00
" " " Jacksonville, Ala.,	20 00
" " " Talladega,	
" " " Huntsville } Ala.,	22 00
" " " Decatur,	
" " " Tusculumbia, Ala.,	22 50
" " " Tuscaloosa, Ala.,	
" " " Columbus, Miss.,	28 00
" " " Aberdeen, "	
" " " Holly Springs,	
" " " Nashville, Tenn.,	
" " " Murphreesboro',	25 00
" " " Columbia, do.,	
" " " Memphis, do.,	30 00

An extra Passenger Train leaves Savannah on Saturdays, after the arrival of the Steam-ships from New York, for Macon, and connects with the Macon and Western railroad; and on Tuesdays, after the arrival of the Macon and Western cars, an extra Passenger Train leaves Macon to connect with the Steam ships for New York.

Stages for Tallahassee and intermediate places connect with the road at Macon, Mondays, Wednesdays, and Fridays, and with Milledgeville at Gordon daily.

Passengers for Montgomery, Mobile and New Orleans take stage for Opelika from Barnesville through Columbus a distance of 97 miles, or from Griffin through West Point, a distance of 93 miles.

\* The Western and Atlantic railroad will soon be completed between Dalton and Chattanooga, a distance of 423½ miles from Savannah, of which due notice will be given.

† Head of the West Point and Montgomery railroad, on which the fare to Montgomery is about \$2.

**RATES OF FREIGHT FOR MERCHANDISE GENERALLY, FROM SAVANNAH TO MACON.**

Measurement Goods.—Boxes of hats, bonnets, furniture, shoes, saddlery, dry-goods, and other measurement goods, per cubic foot	13 cents.
Crockery Ware, in crates, boxes or hhds, per cubic foot.	10 "
Goods by Weight, 1st class.—Boxes of glass, paints, drugs & confectionary, per 100 lbs.,	50 "
2d class—Sugar, coffee, rope, butter, cheese, lard, tobacco, leather, hides, copper, sheet and hoop iron, tin, hard and hollow ware, rice, boxes soap and candles, bagging, and other heavy articles not enumerated below, per 100 lbs.,	45 "
3d class—Flour, bacon, liquors, pork, beef, fish, tallow and beeswax, per 100 lbs.,	40 "
4th class—Mill-gearing, pig and bar iron, grind and millstones, nails, spikes and coal, 100 lb. 30 "	
Barrels of beets, bread, crackers, potatoes, ice, fruit, oysters, onions, and all light bbls, each, 75 "	
Oil and molasses per hhd., (smaller casks in proportion)	\$6 00 "
Salt per sack not exceeding 4 bushels,	50 "

Goods consigned to Thos. S. Wayne, Forwarding Agent, Savannah, will be forwarded free of commission. WM. M. WADLEY, Supt. Savannah, Ga., February 24, 1850.

**ENGINEERS' AND SURVEYERS' INSTRUMENTS MADE BY****EDMUND DRAPER,**Surviving partner of  
**STANCLIFFE & DRAPER.**No 23 Pear street,  
near Third,below Walnut,  
Philadelphia.**GREAT NORTHERN & SOUTHERN MAIL ROUTE.**

From New York to Charleston, S. C. daily, via Philadelphia, Baltimore, Washington City, Richmond, Petersburg, Weldon and Wilmington, N. C.

Travellers by this route, leaving New York at 4½ p.m., Philadelphia at 10 p.m., and Baltimore at 6 a.m., proceed without delay at any point on the route, arriving at Richmond, Va., in a day, and at Charleston, S. C., in two and half days from New York.

Through tickets from New York to Charleston, \$20 00  
" " " Baltimore to Richmond, 7 00  
" " " Petersburg, 7 50

For tickets to Richmond and Petersburg, or further information, apply at the Southern Ticket Office, adjoining the Washington Railroad Ticket Office, Pratt Street, Baltimore. STOCKTON & FALLS. October, 1849.

**ST. LAWRENCE & ATLANTIC RAILROAD COMPANY.**

Notice is hereby given that the Trains run twice per day between Montreal and St. Hyacinth, leaving each terminus alternately, until further notice.

Leaving St. Hyacinth at	7 am.
" " " "	3 pm.
Leaving Montreal at	10 am.
" " " "	6 pm.

THOMAS STEERS, Secretary.

May 31, 1849.

**WESTERN AND ATLANTIC RAILROAD, FROM ATLANTA, GA., TO CHATTANOOGA, TENN. 140 Miles.****PASSENGER SCHEDULE.**

Leave Chattanooga daily, Sundays excepted, at 8½ a.m.	
Arrive at Kingston	by 12 m.
" Dalton	by 3 p.m.
" Chattanooga	by 6 "
Leave Chattanooga daily, Sundays excepted, at 7 a.m.	
Arrive at Dalton	by 9½ "
" Kingston	by 12 m.
" Atlanta	by 4 p.m.

The fare is now permanently reduced to three cents per mile for way as well as through Passengers; children and servants two cents per mile.

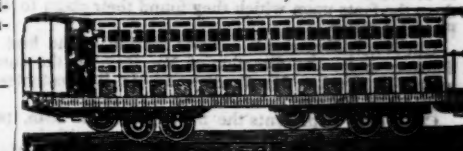
There are two Railroad routes from Atlanta to the Seaboard, viz: one by the Georgia Railroad to Augusta, and thence to Charleston by the South Carolina Railroad; the other by the Macon and Western Railroad to Macon, and thence to Savannah by the Central Railroad.

At Kingston, 60 miles north of Atlanta, the Rome Railroad branches off to Rome on the Coosa river, which admits of steamboat navigation as far down as Greensport in Ala. Mail stages are in operation from Rome leading towards Tuscaloosa, Ala., Columbus, Miss., Memphis, Tenn., etc.

At Dalton, 100 miles north of Atlanta, a line of stages branches off to Knoxville, Tenn., which will be superseded by the East Tennessee and Georgia Railroad as rapidly as the same is completed.

At Chattanooga a number of steamboats are in successful operation on the Tennessee river, and from that terminus of the road stages run to Nashville, which will be superseded by the Nashville and Chattanooga Railroad as rapidly as the same is completed.

WM. D. FULLTON, Supt. Transp.

Transportation W. & A. R. R.,  
Atlanta, March, 1850.**CAR MANUFACTORY CINCINNATI, OHIO.****KECKE & DAVENPORT WOULD RESPECTFULLY**

call the attention of Railroad Companies in the West and South to their establishment at Cincinnati. Their facilities for manufacturing are extensive, and the means of transportation to different points speedy and economical. They are prepared to execute to order, on short notice, Eight-Wheeled Passenger Cars of the most superior description. Open and Covered Freight Cars, Four or Eight-Wheel Crank and Lever Hand Cars, Trucks, Wheels and Axles, and Railroad Work generally.

Cincinnati, Ohio, Oct. 2, 1848.

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# FOWLER M. RAY'S METALLIC INDIA RUBBER CAR SPRINGS.

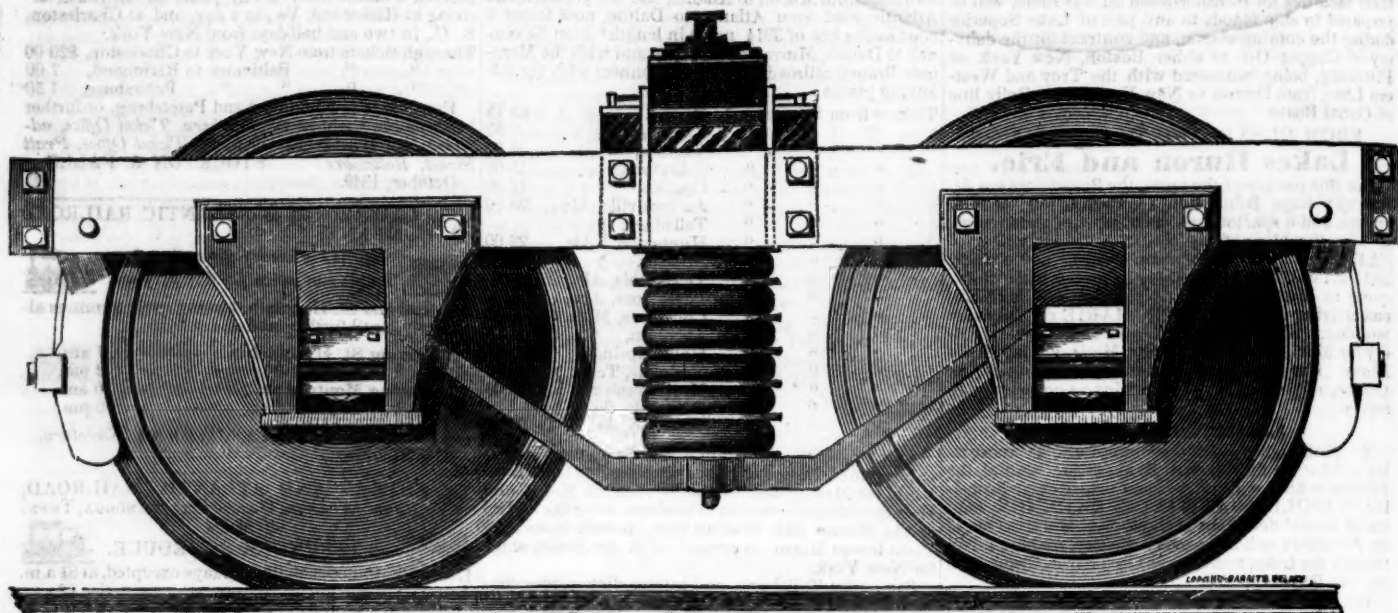


Fig. 1.

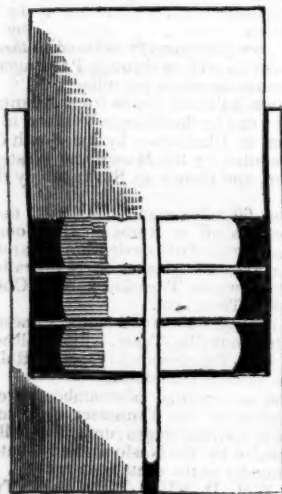


Fig. 2.

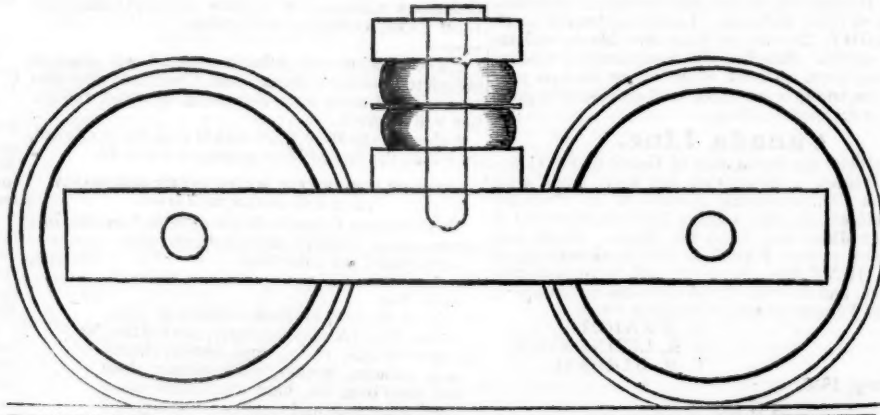


Fig. 3.

So much has been published for the purpose of misleading the public in regard to the inventorship of the India-rubber Railroad Spring, patented in the United States by Mr. W. C. Fuller, that the New England Car Company, proprietors of this invention, have deemed it proper, for the information of Railroad Companies, Car Builders and the public generally, to lay before them the facts upon which they found their claim to this invention, and to a Patent therefor.

Cut No. 1. Represents a cross section of the first model made by Mr. Tucker, under the direction of Mr. Ray, in the summer of 1844, and to which Mr. Tucker, Mr. Bradley and Mr. Bannister testify as being the model marked "B."

Cut No. 2. Represents the model made in 1845, to which Mr. Osgood Bradley and Gen. Thos. W. Harvey have testified.

Cut No. 3. Represents a rough sketch made by Mr. Ray in 1844, which he gave to a man about departing for England to take out some patents, who promised to write to Ray after his arrival in that country—which promise he has probably forgotten.

Mr. W. C. Fuller, of England, patented the above Spring in that country on the 23d October, 1845. He filed his enrollment April 23d, 1846, and on the 22d October, 1846, he took out a patent in the United States under the title, "For Improvement in Railway Carriages," when the improvement consisted in the spring, and not in the carriage.

The reader will perceive by the annexed testimony, that the India-rubber Railroad Car Spring was invented by Mr. Ray about two years previous to the date of Mr. Fuller's enrollment.

The Depositions are omitted for want of room, but will be published in full in the course of a few weeks.

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LETTERS and COMMUNICATIONS to this Journal may be directed to the Editor,

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136 NASSAU STREET.